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Laboratory Studies in Connection with the Evaluation of Poliomyelitis Vaccine, Toronto, 1955¹

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IT has been realized since the original field trial in 1954 that estimates of the prophylactic efficacy of formalinized poliomyelitis vaccine must be based on the results of virological studies of patients. Many virus diseases closely simulate poliomyelitis, especially the nonparalytic variety. In our experience in Toronto over the past several years, recently reviewed by Rhodes and Beale (6), virus studies suggested that the aetiology of 96 cases of aseptic meningitis ("nonparalytic poliomyelitis") was as follows: poliomyelitis, 19%; Coxsackie B infection, 24%; Echo virus infection, 11%. No aetiological agent was discovered in 46%. In contrast, laboratory studies on patients with paralysis diagnosed on clinical grounds as poliomyelitis confirm this diagnosis in about 90% of cases. It is possible that Echo and other viruses as yet undiscovered may be responsible for some of the paralytic illnesses resembling poliomyelitis, but which do not yield evidence of infection with poliomyelitis virus.

Clearly, therefore, any organization which sponsors a poliomyelitis vaccination program must be prepared to provide laboratory facilities for the study by virological techniques of those cases of illness which may subsequently develop in the vaccinated population. An evaluation of a vaccination campaign based only on clinical diagnoses is likely to be fallacious.

During the spring of 1955, a trial of formalinized poliomyelitis vaccine (Salk) prepared by the Connaught Medical Research Laboratories, University of Toronto, was undertaken by the Ontario Provincial Department of Health (3).

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The vaccine was administered to children in Grades 1, 2, and 3 of elementary schools. Illnesses occurring in all children aged 5-12 attending public and separate elementary schools throughout Ontario were reported to the Ontario Department of Health. The total study population in this age group comprised approximately 309,000 vaccinated and 362,000 unvaccinated children.

The authors of the present report were privileged to play a part in the evaluation of this program, for approximately half of those in the trial group who became sick with illnesses suggesting a diagnosis of poliomyelitis during the summer and fall of 1955 were admitted to The Hospital for Sick Children, Toronto.

This paper reports virological studies on 27 patients falling within the trial group. Approximately half of these had been vaccinated in the spring of 1955. Brief reference is also made to studies on 13 paralytic patients. These children, who had not been vaccinated prior to the onset of illness, were not in the trial group, either because they were not in the age group 5-12 or because they attended private schools.

METHODS

Preparation of Specimens. Specimens of stool, cerebrospinal fluid, and blood serum were obtained at or about the time of admission to hospital. A further specimen of blood serum was obtained in the convalescent period.

Stools were prepared for inoculation in tissue cultures as follows:

The stool was thawed and about 2 grams were added to 20 ml. of Hanks' balanced salt solution in a 250 ml. centrifuge tube containing glass beads. The tube was shaken by hand at room temperature to suspend the faeces. This material was filtered through gauze and centrifuged at 15,000 r.p.m. for 30 minutes in a "Spinco" ultracentrifuge; the supernatant fluid was then used to inoculate tissue cultures. If no virus was isolated, the supernatant was later centrifuged at 40,000 r.p.m. for one hour, and the deposit resuspended in the lower 1.5 to 2 ml. of fluid in the tube. This ultracentrifuged deposit was also inoculated in cultures.

Cerebrospinal fluid was stored at -40°C . and inoculated into cultures without treatment.

Serum was separated from clotted blood and stored at -40°C .; it was used unheated, in neutralization tests.

Tissue Cultures. Trypsinized monkey kidney cells were prepared at first by the method described by Youngner (9). Later, the continuous trypsinization flask described by Rappaport (5) was used. At first, Medium 199 (4) was employed as nutrient; 2% horse serum was added during the period of growth of the cell sheet, but no serum was used after inoculation of the cultures. Later, 0.5% lactalbumen hydrolysate in Hanks' solution with 5% horse serum was used for growth; before infection, this fluid was replaced by Earle's solution with 0.5% lactalbumen and 0.1% yeast extract. Human amnion cells were prepared as described by Beale *et al.* (1). Pieces of amnion tissue were trypsinized in a Rappaport flask. The cells were grown in 20% human or horse serum and 0.5% lactalbumen hydrolysate in Hanks' solution. Before infection, the cultures were washed three times in Hanks' solution; finally, they were maintained in Earle's solution with 0.5% lactalbumen hydrolysate with 0.1% yeast extract and 5% horse

serum. Five hundred units of penicillin and 250 micrograms of streptomycin were added to each ml. of all media.

Isolation of Viruses from Pathological Specimens. Specimens were inoculated in 0.1–0.5 ml. amounts into groups of two or more cultures. These were observed daily for one week. If no cytopathogenic change occurred, one blind passage of culture fluid was made. In fact, this procedure did not result in any more isolations of virus. In some cases, toxic degeneration of the cells occurred; this effect was not usually noted when one additional passage was made in fresh cultures.

Fluids from cultures showing a cytopathogenic effect were tested against a pool of high titre type specific poliomyelitis monkey kidney antisera. Agents that were neutralized by this mixture were then tested with the individual Type 1, Type 2 and Type 3 poliomyelitis antisera.

Further investigation of those agents that were not neutralized by poliomyelitis antisera was carried out as follows:

1. The viruses were independently isolated in human amnion cells to exclude the possibility that they were derived from the monkey kidney tissue.
2. Suckling mice under 24 hours of age were inoculated with the tissue culture fluids intracerebrally. They were observed daily for four weeks and were then killed for histological examination. All animals that died or sickened were examined histologically.

3. Ether sensitivity was performed by adding an equal amount of ether to the tissue culture fluid and leaving overnight at 4° C. Ether was then removed, and the fluid tested for cytopathogenic effect in tissue culture.

Serological Tests. Acute and convalescent sera as well as gamma globulin were titrated against the homologous virus isolate (100 CPD₅₀ of virus). Virus and serum dilutions were mixed together, and after one hour at room temperature were inoculated in 0.1 ml. amounts into tissue cultures. Five culture tubes were used at each serial tenfold dilution. The 50% endpoint was calculated by the Kärber method, in terms of the final serum dilution.

Tests for poliomyelitis antibody were performed by the pH inhibition method of Salk, Youngner, and Ward (8). Disposable transparent plastic trays were used (6) instead of test tubes. Cups were sealed with mineral oil (Drakeol) as described by Youngner (10). The results were read after 7–10 days, by observing colour changes. Control titrations of cells, virus, and gamma globulin were done with each test. Each serum was first tested in three tenfold dilutions (1/10, 1/100, and 1/1000) and later over the appropriate range in six twofold dilution steps. Only one cup was used for each dilution. The highest dilution (initial) of serum giving complete protection of the cells was taken as the endpoint.

RESULTS

Virus Isolations. A total of 27 patients aged 5–12 and falling into the trial group were finally accepted on clinical grounds as suffering from poliomyelitis. Only one of these patients had paralysis. The distribution was as follows:

	Vaccinated	Unvaccinated
Nonparalytic illness	12	14
Paralytic illness	1	0
Total	13	14

In addition, thirteen cases of paralytic poliomyelitis not falling into the trial group were studied. These patients were unvaccinated at the time of falling sick. Poliomyelitis virus was recovered from the stools of 12 of these 13 patients.

The results of inoculating stools from the 27 cases in the trial into monkey kidney and human amnion cells are shown in Table 1. It will be seen that a single strain of poliomyelitis virus, one strain of Coxsackie B2 virus and 13 strains of Echo virus were recovered. Twelve patients yielded no virus in stools.

The 13 strains designated as belonging to the Echo group had the following properties: they were not pathogenic for adult or suckling mice; they were resistant to treatment with ether; they were not neutralized by antisera to those members of the Coxsackie family that cause cytopathogenic changes in tissue cultures (A9, B1-4); all of the seven strains so tested were neutralized by gamma globulin (Connaught Medical Research Laboratories), the titres ranging from $10^{-0.5}$ to $10^{-2.5}$.

Specimens of cerebrospinal fluid from all cases were likewise inoculated in tissue cultures, but no viruses were isolated.

TABLE 1—POLIOMYELITIS VACCINE TRIAL, TORONTO, 1955
Results of inoculating stools of patients in tissue cultures.

Vaccination History	Type of Illness	Number of Cases	Poliomyelitis Virus Isolated	Coxsackie B2 Isolated	Echo Virus Isolated	No Virus Isolated
Nonvaccinated	Paralytic	0	0	0	0	0
	Nonparalytic	14	1	0	9	4
Vaccinated	Paralytic	1	0	0	0	1
	Nonparalytic	12	0	1	4	7
Total		27	1	1	13	12

Serological Tests. The acute and convalescent sera of the patient excreting Coxsackie B2 virus, and seven of those excreting Echo viruses, were tested for neutralizing antibodies to the homologous viruses by inoculation in groups of monkey kidney cultures. The results are shown in Table 2.

It will be seen that the patient excreting Coxsackie B2 developed a substantial increase in virus neutralizing antibody in convalescence. In one of the seven patients excreting Echo virus (JR) there was very little antibody present, and the results do not suggest that the agent isolated from the stool was the causal agent of the aseptic meningitis. In four of the remaining six patients excreting Echo viruses, there was a well marked increase in antibody. In another patient (FH) antibody was high in both specimens, suggesting current infection.

Tests for poliomyelitis antibody were carried out by the pH inhibition technique. This was done mainly because of the very low rate of isolation of poliomyelitis virus (1 strain from 27 patients) in the trial group.

For comparison, poliomyelitis antibody titrations were done with the sera of the 13 patients suffering from paralytic poliomyelitis, but who were not in the trial group, and were not vaccinated. The antibody response to the

type of virus isolated from the stool was substantial. Titres in the convalescent phase sera ranged from 1:256 to 1:8192. Many patients already showed substantial amounts of antibody in the acute phase serum, as is usual in poliomyelitis, but five of the ten patients from whom paired sera were available showed an increase in antibody. In most patients, antibody levels to the heterologous types of poliomyelitis virus were very low. This is of interest, as it suggests little previous contact with poliomyelitis viruses in Ontario children under the age of eight. One patient is of interest. Although the clinical diagnosis was one of paralytic poliomyelitis, no virus was recovered from the stool, and no antibody to any of the three types of poliomyelitis virus was present in the acute or convalescent sample of serum.

TABLE 2—POLIOMYELITIS VACCINE TRIAL, TORONTO, 1955
Serum antibodies for homologous Coxsackie or Echo viruses excreted in stool.

Patient*	Virus Isolated From Stool	Neutralizing Antibody Titre for Homologous Virus†	
		Acute	Convalescent
L.W.	Coxsackie B2	0.5	2.5
M.E.	Echo	1.5	1.5
D.R.	Echo	0.5	1.5
T.W.	Echo	1.3	2.9
F.H.	Echo	2.5	1.9
J.R.	Echo	0.5	0.5
G.G.	Echo	0.5	1.5
W.C.	Echo	0.5	2.3

*All patients suffered from aseptic meningitis.

†Titre expressed as negative logarithm of the dilution of serum inhibiting 100 CPD of virus in half the cultures.

It is of interest to compare these results with those obtained in the 13 vaccinated patients in the trial group. All of these had some antibody to all three types. The antibody levels fell into two groups. In the first group, the levels were 1:128 or below, presumably the result of the vaccination given some weeks before in persons with no earlier exposure to poliomyelitis virus. In the second group, the levels were much higher, the result of vaccination acting as a "booster" in persons previously exposed to virus. In none of the 13 vaccinated persons did the poliomyelitis antibody results suggest that the illness was in fact poliomyelitis.

Of the 14 unvaccinated patients, all of whom had aseptic meningitis (Table 1), four had no antibody to any type of poliomyelitis virus. These patients were all aged 6. It will be recalled that one patient excreted Type 1 poliomyelitis. This child showed an increase in antibody titre to Type 1 virus. In none of the other cases did the serologic results suggest the presence of poliomyelitis infection.

DISCUSSION

This report has been made at this time to illustrate some of the difficulties inherent in the evaluation of the prophylactic efficacy of poliomyelitis vaccine. A group of 27 children was admitted to a paediatric hospital with a diagnosis of poliomyelitis, 26 nonparalytic, and one paralytic. Thirteen of these had been vaccinated earlier in the season. Virus studies showed that only a single one

of these 27 patients, a patient suffering from a nonparalytic illness, was in fact infected with poliomyelitis virus. One of the remainder was infected with Coxsackie B2 virus. Echo viruses were recovered from 13 of the group, and were probably the cause of the meningitis in many instances.

It is of interest that in 1955 there was an outbreak of Echo aseptic meningitis in nearby parts of the State of New York; Type 6 virus was identified (2).

Our experience in the following year (1956), to be separately reported, confirmed the important part played by Echo viruses, for there was an extensive epidemic in Ontario of aseptic meningitis, often with a rash. Echo viruses were isolated from many patients.

Our data do not allow us to say whether or not the vaccine used in 1955 was demonstrated to have a prophylactic effect. However, from the practical viewpoint, of 13 isolations of poliomyelitis virus made in the laboratory in the summer and fall of that year, all came from unvaccinated children.

SUMMARY

1. This paper describes virological studies carried out on a group of 27 children aged 5-12 admitted to a paediatric hospital in the summer and fall of 1955 with a clinical diagnosis of "poliomyelitis".

2. Thirteen of these children had been vaccinated with formalized poliomyelitis vaccine in the spring of 1955. One of these developed a paralytic illness later in the year, and 12 a nonparalytic illness. None excreted poliomyelitis virus, but four isolations of Echo viruses, and one of Coxsackie B2 virus were made. The aetiology of the illnesses in the others has not been determined.

3. Fourteen unvaccinated children in the same age group were studied for comparison. All of these had a nonparalytic illness. One isolation of poliomyelitis virus (Type 1) and nine isolations of Echo viruses were made from the stools of the children.

4. The tissue culture methods used were highly sensitive to the presence of poliomyelitis virus, for this agent was recovered from the stools of 12 out of 13 paralyzed patients, all unvaccinated, and not forming, for various reasons, part of the trial group above mentioned.

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The Future of Health Services in Canada

A SYMPOSIUM

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IN speculating on the future of health services in Canada, we have the benefit of long-term trends in Canada and experiences in other countries to study. Of course, no two countries are exactly alike, and no two periods in history are identical, but there are perhaps enough similarities or parallels among nations and periods to permit some cautious generalizations.

I should like to discuss the future of health services under three main headings—the headings that are perhaps the three main categories of social organization of the healing arts. I refer to: (1) hospitals, (2) medical and related services, (3) community health organization.

Hospitals

The recent proposals of the Canadian government have focused national interest on the financing and organization of hospital services in our country. In brief, the federal government has offered to finance approximately 50 per cent of the operating costs of any provincial program of hospitalization, which shall be available to the entire provincial population. In practical terms, this means some form of compulsory hospitalization insurance or else public revenue support for all hospital services. The exact percentage of federal subsidy is flexible, being greater for provinces spending proportionately less on hospital care and vice versa. Saskatchewan would get 47 per cent aid. Care in general hospitals only is to be supported, since provincial governments have been providing mental and tuberculosis hospital care as a public service for many years. The program is to take effect when a majority of the provinces with a majority of the Canadian population have set schemes into action.

There can be little doubt that the program of hospital services under public financing inaugurated by Saskatchewan in 1947, the first such action on this continent, provided the initial impetus for this federal proposal. Two years later, British Columbia started a similar scheme, and then Alberta. The recent federal proposals have introduced the new element of the inclusion of out-patient diagnostic services in the scheme. The interest is obviously not only to extend public financing of laboratory and radiological services, so important in modern medicine and often so expensive for the patient, but also to reduce a tendency to seek hospitalization for diagnostic work-ups which might be performed more economically on an out-patient basis.

An economic underpinning of hospital services, as we have seen in

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Saskatchewan, has effects far beyond the financial office. It makes possible the generous support of hospital operations in localities and to an extent not previously experienced, with the result that great pressures are created for construction of expanded facilities. In both Saskatchewan and British Columbia, the ratio of hospital beds to population has greatly increased, and this may be expected to occur in the rest of Canada, perhaps in a different degree, when a nation-wide program is developed. With such expansion, costs naturally rise, and governments are necessarily led to seek approaches to economy. Such approaches usually involve a degree of public supervision over hospital operations, directed to maintenance of the highest quality of services at the lowest reasonable costs.

Some view with alarm this tendency toward increased public supervision over hospital affairs, although I think world experience shows the general effect to be beneficial for people. British, Swedish, French, and other European hospitals, now financed almost 100 per cent by public funds (including general revenue and insurance sources), are in sounder shape than ever before—better equipped and staffed than in pre-insurance days. Public supervision, when intelligently applied, tends to raise the level of performance of those institutions, in any country, which fall below a proper standard.

Public financing of operating costs of hospitals also may have other consequences. It can encourage the organization of regional schemes which help to assure to rural people the same standards of technical service as are enjoyed by residents of large cities. It permits the construction of community hospitals for the handling of common conditions where they are needed, with the assurance that for difficult medical or surgical problems the patient may be readily referred to a larger district or regional center. Almost all countries have come to the concept of systematic hospital regions, and one may reasonably expect that this will also occur in Canada in due time. Under such arrangements, the isolation and sovereignty of individual hospitals will be replaced by teamwork and joint management among several institutions in a geographic region.

These developments, in turn, have implications for the capital construction costs of hospitals. Since residents of one locality may and often do require hospitalization in a distant place, the rationale of purely local financing of hospital construction loses much of its meaning. As a result, pressures are created for supporting hospital construction on a very wide geographic basis, such as whole provinces or even nations. These pressures are already partially met in Canada through the provincial and national grant programs for hospital construction, and there can be no doubt that the principle will be further extended in the years ahead.

Medical and Related Services

The national proposals on hospital and diagnostic services have been set forth as an initial instalment in a conception that embodies as its ultimate goal the prepayment of all health services. The choice of hospitalization as the first stage in a series of benefits has been dictated by many considerations, which we cannot here consider fully. The most decisive, perhaps, are the facts that (a) hospital expenses are relatively catastrophic to a family budget and

(b) voluntary insurance and provincial programs have already shown the idea to be practical.

Prepayment of medical and related services presents many issues on whose development predictions cannot be so readily made. It seems altogether likely that a similar course will emerge as we are seeing in the hospital field. That is, there will probably be one or two provinces launching a scheme of universal medical care insurance before many more years pass by. One can predict this on the basis of experience in other countries, where growth of voluntary insurance coverage has led inevitably to governmental action for enrolling the non-covered minority. In Germany, this point was reached in 1883, in England in 1911, with extension to non-workers in 1948, in Sweden in 1955, in Norway in 1956.

In Canada, we see an expanding percentage of the population enrolled in a great variety of voluntary medical care insurance plans. Unlike the American schemes, the Canadian ones finance comprehensive physicians' services, not merely care in hospitalized illness. Saskatchewan is ahead of the rest of the country, with about 50 per cent of the population now enrolled in one type of prepaid plan or another. This includes the old municipal doctor plans, the regional plan around Swift Current, the voluntary plans, the public programs for social assistance recipients, and miscellaneous industrial schemes. In all provinces, the percentage of the population covered by prepaid medical care of some type is significant and expanding.

As these percentages grow throughout Canada, pressures will inevitably develop for enrolment of non-covered persons. This may take the form of governmental subsidies of voluntary plans to permit reduction in premiums, or legal requirements that all or certain persons shall join plans. Eventually the national government will probably offer to share collective costs for physicians' care, as it has now done for hospital care.

The major economic effect of a publicly financed program of medical care, contrary to the beliefs of some, is that increased sums of money are invested in health. By prepaying the costs, funds that otherwise went for other purposes become devoted to medical service. As a result there tends to be a rise in the overall earnings of physicians, although doctors may be faced with more demands on their professional time.

With a rising volume of medical services under wide-scale insurance, methods may be expected to develop to improve the quality of services and yet save the doctor from unreasonable demands on his time. The extreme specialization of medicine all over the world has led in some countries to the attachment of specialists to hospitals, and to a sharp separation between specialist and general practitioner. In Canada and the United States, however, it has led to the organization of group practice clinics and I think we can expect these to grow rapidly in the years ahead. Under this pattern, physicians in functional teams will be able to give better services, at less cost to the insurance system because of economies in the overhead of practice. The growing urbanization of our population and steady improvements in roads and transportation will doubtless accelerate this tendency to specialization and group practice.

Other services in the staging of health service insurance may be expected

to follow. Home nursing and dental care will perhaps be offered, with some sort of cost-sharing arrangement. The real limitation in these fields is the extreme inadequacy of personnel, relative to the needs. Innovations in the way of auxiliary dental and nursing personnel may be expected in order to cope with this problem. Eventually, drugs, eyeglasses, and appliances will probably be provided under some kind of plan. Administrative problems of many types will have to be worked out.

Community Health Organization

As for public health and other community health services in Canada, I think one may expect various changes in their form and content in the years ahead. In their form, the present trend toward financing at higher levels of government will doubtless continue. In a dynamic industrial economy, the relative taxation powers of higher echelons of government expand and, as a result, support for health and welfare services must come increasingly from higher levels. With such support, standards of service will be set more generally by provincial and national, as distinguished from local, governments. Voluntary health agencies will doubtless continue to pioneer in new ideas.

In their content, community health services will have to change to meet the changed character of modern disease problems. While we still have a long way to go, the goal of eradication of communicable diseases of all types begins to appear on the horizon. Even before it is reached, emphases will be shifted. Our priorities in environmental sanitation, communicable disease control, and child and maternal health will be replaced by priorities in mental hygiene, occupational health, and chronic disease control. New insights may be expected in the years ahead in the epidemiology of the psychoses, cardio-vascular disease, and cancer and with them, clues to prevention. These measures of prevention, which may involve education in a way of life rather than convenient immunizations of any sort, will be incorporated in the everyday public health program.

As our population attains greater longevity, more and more of our efforts will have to be directed to helping old people keep happy and well. We must find ways of handling chronically ill senior citizens in their homes, with development of home-care services emanating from hospitals. Visiting nurse services will have to expand and I should think they will have to become integrated with what are now public health nursing services. Sanitary officers of the future will be spending much greater proportions of their time than at present on accident-prevention and promotion of housing standards. Increased attention will necessarily be given to rehabilitation of the disabled and the aged, not only in special rehabilitation centers, but in every hospital. These will probably be community-supported services, in the same sense that tuberculosis care is now an accepted public responsibility.

The complexity of health service organization, to meet all the needs, will become so great that the public health agency of the future will probably be vested with a co-ordinating authority wider than any it now possesses. The interdependence of hospitals, physicians' services, and public health programs will increase, and some sort of unified administration will be necessary to keep all actions synchronized effectively. I believe we will see local health jurisdic-

tions which are not limited to a narrow sphere of preventive service, but rather encompassing all aspects of medical, hospital, and related services provided by way of social action.

These, then, are in brief the lines of future development I see for health services in Canada. One cannot set a time-table on any of these steps, because everything will depend on the general social and economic picture. Most of us are sanguine about Canada's economic future.

Regardless of the schemes of social organization, the quality and quantity of health services available to Canadians of the future will depend not only on our economic potential, but also on the share of that wealth which we devote to health. Taking all curative and preventive health services together, public and private, the Canadian economy devotes only about 4 per cent of its total resources each year to health purposes. It is easy to bemoan the fact that greater sums are now spent on liquor and tobacco, but this can hardly be changed without extension of group financing of essential services. If a larger piece of the economic pie is to be devoted to health, it will take much social planning. Saskatchewan has been in the forefront of such planning. Recent events suggest that all of Canada is moving in the same direction.

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To the rural population, security and parity are two concepts which have strong ethical as well as economic and social characteristics. The farmer's quest for security and parity have become part of the tradition of agriculture; in recent decades that quest has been greatly intensified. The character of rural life is undergoing deep and fundamental change. Its people are now exposed to many of the same demographic, social, and economic forces that have led to increased insecurity in the urban segments of the population.

Commercialization and mechanization of agriculture have led to an increased dependency upon a money economy with its accompanying risks of price and market fluctuations. Mechanization has quickened the pace of agriculture and with it has come a greater emphasis upon ready access to health services. Moreover, as investments in machinery and other production tools increase, many farmers find it more difficult to realize income levels fully adequate to our modern standard of living. Other groups in our economy have sought, and successfully realized social security measures not yet available to the farm population.

It is against this very brief background that I want to make one or two observations on Dr. Roemer's paper. I am aware that the questions which I raise are no doubt implied in his discussion of the federal proposals. My intention is merely to highlight some of the features with particular relevance to the rural situation.

The income implications are obviously of first importance. There are several ways whereby public policy can usefully bolster farm income. One device, frequently unrecognized as such, is public investment in social services. When this is done on a federal scale, then in a province such as Saskatchewan, it is in effect a redistribution of income in favour of agriculture. This is so not only because the farm population makes up such a large proportion of the total population in this province, but also because of the persistence of a high percentage of low income farms in agriculture. As Dr. Roemer suggests there is also an important qualitative difference; not only does the farm family have greater access to health services but the quality of these services will show marked improvement. Too much emphasis cannot be placed, in

my opinion, on the greater advantages which accrue to rural Saskatchewan from a federal approach in contrast to a purely provincial approach when the income redistribution implications are considered.

I do want to emphasize that under a compulsory contributory health scheme, the very low incomes which prevail on a high proportion of Saskatchewan farms will mean that the rates should be established at a fairly low level and the contribution from the general fund at a fairly high level. This problem is even more acute in other agricultural regions such as the Maritimes. This aspect is emphasized even more by the highly variable nature of farm income and the increased inflexibility of farm costs. One might well ask to what extent this sensitivity to assessing further tax obligations is related to the recent failure of two areas in this province to vote the medical insurance schemes.

Dr. Roemer's paper does not give much attention to the problems associated with access to health services in rural Saskatchewan. There is considerable evidence of farm impatience with the difficult lags in rural public services. In the prairie area, in particular, this seems to be an important factor in the pronounced trend toward residence in villages. The problem of access to health services is much more complex in rural areas than it is in urban centers. To this extent farm people will continue to experience considerable disadvantage in any contributory or tax-based health program. Some emphasis will be required on the improvement of our rural road systems. It is equally important that careful attention be given to the appropriate location of health facilities. There can be no doubt that a major shift is occurring in the trade center patronage habits of the farm population. If the economies by governments, mentioned by Dr. Roemer, are to be realized, then every effort should be made to obtain reliable information on these trends on a localized basis.

I was also curious about the implications of Dr. Roemer's statement for local government in the rendering of hospital services. I agree that senior levels of government should be increasingly active in the establishment of high standards of medical service. I presume, however, that local taxation and local ownership of facilities shall continue to prevail. The creation of larger units of local administration is another of the distinctly necessary trends in the development of modern rural services. There is a very real danger, however, that we may eventually overpower our local jurisdictions if reasonable care is not taken in the provision of measures which will increase the administrative abilities of local citizens. This is an aspect which I do not pretend to understand when applied to health service administration, but I do think that it merits careful consideration in an extended health scheme.

Finally, I would like to see a greater emphasis placed upon community organization for health education. It would seem to me that this is related not only to a more effective approach to preventive health measures but is also necessary if citizens are to increase the value placed upon investment in improved health services. I cannot entirely agree with Dr. Roemer's statement that "it is easy to bewail the fact that greater sums are now spent on liquor and tobacco, but this can *only* be changed by extension of group financing of essential services". No doubt, direct experience with prepaid health services has important educational consequences but I hesitate to generalize to the point of saying that group financing alone will change our rural value system.

There are other aspects of Dr. Roemer's paper upon which time will not permit me to elaborate. The increasing migration of rural population to urban centers would certainly further emphasize the national importance of improved health services. In this respect our urban areas stand to gain substantially from marked improvement in the general level of rural health. I could also comment upon the increased incidence of elder citizens in our rural areas and the relatively greater problems of access to the benefits of geriatric medicine.

I have already mentioned the mechanization of agriculture. We now have some five hundred million dollars invested in motorized equipment on our farms. The advent of farm electrification will further increase the industrialized nature of modern

agriculture. We know that the incidence of accidents related to the use of farm equipment is already high. The federal proposal should have a timely impact upon this phase of farm security.

PROFESSOR HAZEL KEELER
SCHOOL OF NURSING,
UNIVERSITY OF SASKATCHEWAN

I should like to comment on Dr. Roemer's paper by focusing attention on certain major and practical problems in the nursing field which will demand solution because of extended publicly financed health services.

Everyone is keenly aware of the lack of nursing staff adequately prepared to offer the increasingly higher quality of service demanded in the hospital, in the out-patient department, and in community health organizations. The sources of nursing staff today are schools of nursing operated primarily by general hospitals and largely for the purpose of meeting their own immediate nursing requirements. There is a need for a careful examination of what the nursing needs are in hospitals, out-patient clinics and community health agencies. We must define more clearly the various categories of workers in the nursing field with the appropriate education and training of each group to meet these different needs.

University or college-operated central schools of nursing offer four-year courses designed to prepare a group of well qualified nurses from which may be drawn head nurses, supervisors, public health nurses, matrons of small hospitals, and consultants in specialized areas. These schools should not be concerned mainly with service to the hospital during the students' clinical experience but primarily with the preparation of students for professional nursing, in the full meaning of the word professional.

It is necessary to stress the importance of university or college auspices because the student must have something in addition to a good and functional knowledge of the healthy and diseased organism. There is need for a fuller understanding of psychological states and social relationships. There is need for a wider knowledge of the environment, physical, mental and emotional, and its effect upon people. One cannot over-emphasize the importance of providing organized instruction in the social sciences and in administration, supervision and teaching, as well as in the biological sciences now being stressed.

The great majority of our nurses at the present time come from three-year hospital schools. Upon graduation they are expected to provide leadership and display all the qualities of a good administrator, a supervisor, and a teacher. Yet for this they are unprepared; and a large proportion are unwilling to assume the responsibilities which derive from positions of leadership.

It is obvious that we will need a second group prepared as *nurse technicians*. I am not certain that we are right in using the title non-professional, nursing assistant or practical nurse for this second category. This group of nursing personnel could carry out satisfactorily most of the routine measures and practical procedures in present-day hospital nursing practice. They can be trained in large numbers and in a shorter time than three years, perhaps in one year and certainly within two years. They should work under supervision and should not be responsible for decision-making to any extent. One can estimate that approximately 50 per cent of the present nursing force already fits into this category of nurse technician. Thus we can visualize that the four-year college course and a two-year or less technical training program can together fulfil our over-all needs for nursing staff. Moreover, the centralized teaching program in Saskatchewan has shown that centralization of the main didactic part of a program can be an effective means of making the best use of well qualified teachers in preparing larger numbers of students.

Dr. Roemer mentioned supervision over hospital affairs, geared to maintaining

proper standards of performance at the lowest reasonable cost. In revising standards, there is a great need for research by nurses into nursing procedures and the routine measures which involve the time and energy of nurses and auxiliary personnel. A small start has already been made with work simplification and functional analyses, at least to the extent that we are familiar with the terms and have a good idea as to their implications. With the continued emphasis on surgery, along with its extension into many specialized areas, there is a great need for simplification and standardization of various procedures.

At this point a word of warning is in order. Too great an emphasis on efficiency in getting things done and in saving time and money does not always mean an increase in effectiveness in our increasingly complex hospital situations. We must still think of what is best for the patient and the efficient way is not always the best way to give direct care. It takes time to be kind. If one nurse stops for just two or three minutes to talk to one patient on each shift, four and a half hours are used up at the end of one month just to be kind to one person. In an institution of 100 patients this would mean 450 hours a month, equivalent to two and a half employees working a 40-hour week.

Most hospitals have more or less grown up "like Topsy" and vary in size from a few beds to thousands. The larger hospital usually has resources to solve its own problems if it cares to use them. The small hospital with limited resources needs assistance. Toward this end, it would be useful to transform a small 20-bed hospital into a Demonstration Center. In such a center it would be possible to study more intensively what services a small hospital should be giving, how these services should be carried out, the relative needs for different categories of staff, and the functions each staff person should be expected to fulfil. This would give our schools of nursing and the schools for nursing assistants sound information and a real reason for reconstructing their curricula.

Finally, we must not overlook the need for better communication between doctors and professional nurses. At present it is largely one way based on patterns which were satisfactory in the past. Mutual understanding and free communication both ways can only result in better service to patients.

D. E. RODGER, M.D.
INTERNIST, MEDICAL ARTS CLINIC
REGINA, SASKATCHEWAN

As my contribution to this discussion I wish to comment on medical and related services as a practising physician. I feel that there is general agreement among doctors that some form of complete insurance for medical care will be developed. Although the medical profession may be considered reactionary, our profession is not opposed to change. Indeed, it is dedicated to effecting change.

Whether we think government participation in plans for medical care is good or bad, it is coming; and while I cannot say I am in favour of control of medical practice by government, I recognize the trend toward an increasing participation by government in this field, and think the profession must meet the trend with constructive assistance. By doing so, the profession can help safeguard the best established principles of good medical practice.

With regard to planning in Saskatchewan, I think it highly probable, because we have an established and approved plan of hospital insurance, that we shall be one of the first provinces to extend our present medical care programs to cover all our people. In approving the principle of contributory health insurance, the Canadian Medical Association in 1953 set out in detail its beliefs and policy in this regard. One point it particularly stresses is: "To assure the highest standards of medical practice, the confidential nature of the patient-doctor relationship must remain inviolate; this implies full choice of doctor by patient and full acceptance of patient by doctor."

Another aspect of this trend in medical care about which I am greatly concerned is preserving and improving the quality of medical care. This does not arrive by rule or regulation, but through the motivation of the individual. I fear some of the plans for increasing diagnostic facilities are going to lead to a deterioration in the quality of medical care. No number of X-ray examinations or laboratory tests can substitute for sound clinical appraisal, and unless we resist these trends, we are going to have a deluge of tests and a drought of ideas in our medical care—and it is the patient who will suffer.

With regard to general principle of deterrents, these are often difficult in application. Sometimes it is the doctor and sometimes it is the patient who abuses the service. But I believe in the principle of deterrents just as I believe no patient should be encouraged to believe he can get something for nothing.

In planning for the future of medical care we must be aware of the dangers of a strongly centralized administration. I think one of the greatest dangers is "compulsory uniformity". While there is a strong social and biological urge to attain uniformity and to conform to the group standard, too much of this will have a withering effect on the growth of medicine. We must remember that the practice of medicine will always be an art, as well as a science, and I believe more of an art than a science. So we must do with our legislation in medical care as we have done with our laws: Let them remain reasonable (which is the essence of our law) rather than strict.

What has been called "the pursuit of the first rate" must be allowed to continue to flourish. Society will be the poorer if we fail to allow the person that is different or even odd to pursue his ideas. If the practice of medicine had been controlled in the days of Sir James MacKenzie, I am sure he could not have made such fine observations on the disorders of the heart, and even if he had, acceptance of his observations might have been denied because he was a country practitioner!

Another danger of a too strong central administration is the tendency to forget the human being (the patient). This same danger is present in world social problems of today. We speak of this group, that class, that religion, the workers, the capitalists, the Russians, the Marxists, and we forget the individual man! I must agree that a strong administration is going to be a very important, and a very necessary item in a future medical care program. This challenges us to provide the best and most enlightened administration possible. Ours should be better than that in any other country for we have the opportunity to benefit from their experience and to learn from their mistakes. I believe the ideal administration must have adequate representation of the practising profession. Much has been said about what form this administration should take. I think there are many advantages in the commission type of administering body, which is the type approved by the Canadian Medical Association.

By working out the solutions to these problems with the medical profession and the other groups that will be providing the services, I think government has an opportunity to bestow its greatest gift on its people which is to increase the stature and dignity of man, the individual.

G. W. MYERS
EXECUTIVE DIRECTOR,
SASKATCHEWAN HOSPITAL SERVICES PLAN

The implementation of the federal proposals on health insurance will require much organizational work in provinces which are not already operating hospital care insurance plans. Considerable time will be required for discussions with interested organizations regarding such questions as the schedule of hospital services to be covered by the insurance plan, services to be paid for by the patient, and the method of determining the insurance plan's rates of payment to hospitals. The administrative staff of the plan must also be engaged and trained.

In Saskatchewan, the terms of the federal contribution will require an enlargement of the schedule of services now covered by the Hospital Services Plan. The additions to the schedule will consist of out-patient laboratory and X-ray services. At the present time our plan covers most in-patient services at the public ward level, including in-patient laboratory and X-ray services, but excludes all out-patient services.

What effect will the coverage of out-patient laboratory and X-ray services have on the development of hospital facilities in this province? First of all, the resulting increase in out-patient work will create pressures for the organization of out-patient departments in all but the smaller hospitals. Formal out-patient departments are almost non-existent in Saskatchewan hospitals at the present time.

A second effect will be the elimination of patients' requests that their doctors place them in hospital for services which could be provided on an out-patient basis but which now involve a charge to the patient if provided in this way. To the extent that this factor may have resulted in some inflation of the volume of in-patient care, the need for in-patient hospital facilities will be reduced by coverage of these out-patient services. This may not result in an immediate and widespread reduction in the cost of in-patient care, as a large part of hospital operating costs are of a relatively fixed nature.

A factor which will continue to affect plans for hospital development in the province is the shift of population from rural areas to urban centers and from small towns and villages to larger ones. This long-term trend together with improvements in transportation facilities will result eventually in the elimination of many of our smaller hospitals and the enlargement of those in principal urban centers.

The tendency of the population to concentrate in the larger urban centers may also have a bearing on the total number of hospital beds needed in the province. Studies carried out a few years ago by the provincial Department of Public Health disclosed wide differences between urban and rural residents in the incidence of various categories of hospitalized illness. City residents experience fewer admissions to hospital than dwellers in towns, villages and rural areas, but their average stay is longer. Total days of hospital care, when adjusted for age and sex distribution, are not significantly different for residents of urban and rural communities. One point not revealed by these statistics is the need of less robust members of the population to live in urban centers where there is ready access to medical and hospital facilities. This fact suggests that less hospital care actually is provided in the province per 1,000 city residents of a given age and sex distribution, and a given average state of physical fitness, than would be the case if these persons resided on farms. The present shifting of population may result, therefore, in the province eventually needing less than the 7.5 general hospital beds per 1,000 persons which were recommended in the provincial Health Survey Report.

I agree with Dr. Roemer that the next few years will probably see the extension of comprehensive medical and hospital care and other health services on an insurance basis to all Canadians, financed jointly by the federal and provincial governments.

In closing the discussion Dr. Roemer emphasized that in modern democratic countries social organization of health services does not lose sight of the human needs of the individual but has an opposite effect, namely to protect the interests of the individual. Further, the social organization of health services helps to meet the personal needs of individuals and to make it possible for them to enjoy the benefits that science offers. Without social organization a person lacking in money or education is often overlooked and fails to get the services which could help him. With social organization the record proves that individual health and welfare have been considerably advanced.

The Rabies Menace in Canada¹

K. F. WELLS, D.V.M.²

WE have in Canada today a rabies problem which differs materially from that of earlier years. Rabies has been officially reported in Canada in 32 of the last 47 years. In earlier years the threat centered around the dog. This has been true for centuries not only in Canada but in all world areas where rabies has been a problem. In Canada, the source of rabies infection has changed from dogs from the United States or imported from other infected foreign countries to our Canadian wild animals, particularly the fox.

While rabies in Canada has always been considered as a potential threat it has not, until recent years, been a threatening livestock disease. This change has been brought about by the entry into the rabies picture of wild life, mainly the fox.

It will be noted from Table I, which shows the positive cases of rabies reported in Canada from 1939 to date, that the wild life problem (miscellaneous column) did not become serious until 1952-1953.

TABLE I—RABIES IN CANADA 1939-1957 (April 1-March 31)

Year	Dogs	Cattle	Horses	Sheep	Swine	Cats	Misc.	Total
1939-40	10	3	—	—	—	1	—	14
1940-41	4	—	—	—	—	—	—	4
1941-42	—	—	—	—	—	—	—	—
1942-43	12	—	—	—	—	—	—	12
1943-44	18	—	—	—	—	1	—	19
1944-45	58	3	1	—	—	1	—	63
1945-46	28	4	—	—	1	1	—	34
1946-47	—	—	—	—	—	—	—	—
1947-48	—	—	—	—	—	—	—	—
1948-49	—	—	—	—	—	—	—	—
1949-50	—	—	—	—	—	—	—	—
1950-51	—	—	—	—	—	—	—	—
1951-52	1	—	—	—	—	—	—	1
1952-53	42	3	—	—	3	4	68	120
1953-54	14	12	—	4	6	5	33	74
1954-55	32	12	1	5	10	2	71	133
1955-56	37	21	—	1	2	11	108	180
1956-57	4	8	2	—	—	1	62	77

In the summer of 1947 a disease, known to the Eskimo for 50 or 60 years as wild fox disease, was definitely diagnosed as rabies. This diagnosis opened up an entirely new rabies front to the settled parts of Canada. Immediate steps

¹Presented at the Joint Public Health Conference of the Ontario Public Health Association and the Canadian Institute of Sanitary Inspectors, Toronto, Ontario, September 24-26, 1956.

²Veterinary Director-General, Production Service, Department of Agriculture, Ottawa, Ontario.

were taken to vaccinate as many work dogs as possible in the affected area of Baker Lake, 2,000 miles north of Winnipeg, Manitoba, in the Northwest Territories. The disease appeared to subside and it presented no threat to the southern parts of the country until June 1952, when an outbreak was reported in northern Alberta. This outbreak undoubtedly originated from the Northwest Territories.

The origin of rabies in the Northwest Territories is obscure, but it probably has existed there for at least 50 to 60 years. Some suggest the original infection was brought in by wild life across the Bering Strait through Alaska from Russia. It is now definitely established that the infection exists right across our Arctic regions with wild life acting as the reservoir.

Strangely enough, there is no record of human deaths from rabies in our northern regions and the records go back many years. The heavy Arctic clothing habitually worn in the North may explain the lack of human infection. Vital statistics of Canada record only 14 human deaths from rabies in Canada. These are shown in Table II.

TABLE II—HUMAN DEATHS IN CANADA DUE TO RABIES

1925.....	1 (Saskatchewan)
1926.....	1 (Quebec)
1927.....	3 (Quebec)
1929.....	5 (Quebec 4, Ontario 1)
1931.....	2 (Ontario 1, Alberta 1)
1933.....	1 (Quebec)
1944.....	1 (Ontario)

The outbreak in June 1952 which originated in northern Alberta spread through the province of Alberta and the northern areas of British Columbia, Saskatchewan and Manitoba. This outbreak has now been brought under control in Manitoba, Saskatchewan and southern Alberta but the threat still exists in northern Alberta and British Columbia.

The Alberta rabies outbreak in bringing the wild life and farm livestock problem into focus brought about the first major change in Canada's rabies control policy. Because of exposure from wild life in the sparsely populated frontier areas of northern Alberta, mass vaccination of dogs was authorized in these exposed areas in the fall of 1952. This mass vaccination was conducted entirely by veterinarians of the Health of Animals Division at the expense of the Dominion Department of Agriculture. Over 100,000 doses of vaccine were administered. The entire affected area was put under strict quarantine and all dogs were ordered to be strictly confined. The vaccination was considered an adjunct and in no way replaced absolute dog control.

Wild animals now present a real problem in rabies control and probably always will. During the Alberta outbreak the provincial wild life service, in conjunction with the Department of Agriculture, did an excellent job of reducing wild life particularly in the northern part of the province. The purpose of this work was not to eliminate wild life predators but to reduce their numbers below the threshold level for disease spread and to prevent by trap lines as many as possible of these predators from filtering into fringe farming or urban areas, thereby protecting both human and livestock life.

There is some controversy among wild life authorities as to whether such a program of wild life reduction does or does not achieve its desired goal. On this matter I am not qualified to pass an opinion. The Canadian Wild Life Service is interested in the problem and is planning projects designed to establish the relation between fox population densities and the spread of disease. If some relation between population density and disease dissemination can be established it will become feasible to be aware of and prepare for possible rabies outbreaks.

The Ontario Situation

Turning specifically to Ontario, the major outbreak of 1955 can be considered to have started with the positive diagnosis in a fox during the late fall of 1954 at Iroquois Falls. This was followed by evidence of the disease in the Kapuskasing area early in 1955. From here reports were received indicating its presence throughout the greater Cochrane district area. Subsequently, it moved southward into the districts of Temiskaming and Sudbury in the spring of 1955. From May until December 1955 there was no evidence of spread beyond the already established areas. In December, evidence was uncovered that the disease was in the Algoma district, which was followed in January with identification of rabies infection in the south central counties of Simcoe, Victoria, Hastings and Renfrew. It then spread beyond these counties and isolated cases were reported in a number of counties in southern Ontario, as indicated in Table III.

It will be seen from Table III that in the fiscal year 1955-1956 out of a total of 137 positive cases only 23 or 16.8 per cent were in dogs and 89 or 64.9 per

TABLE III—POSITIVE RABIES IN ONTARIO
April 1, 1955-March 31, 1956

County or District	Dogs	Cats	Bovine	Sheep	Fox	Lynx	Wolf	Raccoon	Total
Cochrane	3		8		19				30
Parry Sound					3				3
Sudbury	2	2	5		16		1		26
Timiskaming	2		2	1	11				16
Rainy River	1								1
Victoria	1				4			1	6
Algoma	1	2				1			4
Simcoe	1								1
Patricia	1				2				3
Hastings	1	1			1				3
Renfrew	2								2
Nipissing	5	1			23				29
Durham	1							1	2
York					2				2
Northumberland					1				1
Prince Edward			1						1
Peterborough					2				2
Bruce					1				1
Wentworth	1								1
Haliburton		1							1
Wellington		1							1
Lennox & Add.	1								1
Total	23	8	16	1	85	1	1	2	137

POSITIVE RABIES IN ONTARIO
April 1, 1956–August 31, 1956

County or District	Dogs	Cats	Horses	Bovine	Fox	Squirrel	Total
Sudbury			1		10		11
Nipissing	1	1		1	29		32
Timiskaming	1			2	5		8
Manitoulin					1		1
Parry Sound				1	4		5
Renfrew					1		1
Victoria					1		1
Hastings						1	1
Cochrane				1			1
	2	1	1	5	51	1	61

cent were in wild life, mostly fox. In the period April 1, 1956 to August 31, 1956, 2 out of 61 or 3.2 per cent were in dogs and 52 or 85.2 per cent were in wild life. As probably all positive dog cases were reported while only a small portion of wild life cases were diagnosed it becomes evident that we are indeed dealing with a disease that has its reservoir in wild life.

The following table shows the breakdown by species with percentages for all Canada for the years 1952–1953 to 1955–1956 and April to August 31, 1956.

TABLE IV—POSITIVE CASES OF RABIES BY SPECIES

	1952–53		1953–54		1954–55		1955–56		Apr. 1 to Aug. 31 1956	
Wildlife	68	57%	33	45%	71	53%	108	60%	62	81%
Domestic (excluding dogs)	9	7%	27	36%	30	23%	35	19%	11	14%
Dogs	43	36%	14	19%	32	24%	37	21%	4	5%
Total	120	100%	74	100%	133	100%	180	100%	77	100%

Control Measures

With respect to control measures, the Health of Animals Division is dependent upon a thorough investigation of all cases or suspected cases of rabies, individual quarantine of suspected cases, mass vaccination of dogs in infected areas, and control of dogs under either municipal or federal requirements.

At the initial reporting of a suspected case of rabies, the Health of Animals veterinary officer is detailed to investigate the case fully. If the animal concerned has died, all information available with respect to contacts by the animal prior to its death, is obtained and the head of the animal is forwarded for laboratory examination to the Department's Animal Diseases Research Institute, Hull, Quebec. If the animal in question is not dead at the time of investigation, it is quarantined for a period of at least two weeks. If it dies during this quarantine period, the head is forwarded for laboratory examination. If the animal does not die within this period, it can be assumed that the animal is not suffering from rabies.

Wherever rabies is suspected or proven, and there is human exposure through biting by the suspected animal or other contact, the Deputy Minister of Health for the province and the local medical officer of health, are both notified. The persons involved with the suspected or proven rabid animal are advised to consult their physician immediately. All results of the Health of Animals Division veterinarian's investigation are available to the local medical officer of health and the personal physicians of the persons involved, and the provincial department of health, and the local medical officer of health are immediately notified upon receipt of the laboratory report resulting from the histopathological examination of the brain of the suspected animal.

If the investigation by the divisional veterinarian indicates that there has been a passage of infection from wild life to dogs or if the initial report concerns a dog and the investigation indicates that exposure to other dogs in the area has taken place through the actions of the positive dog, the Health of Animals Division establishes vaccination clinics in the area involved and all dogs and cats in such areas are vaccinated free of charge. The anti-rabies vaccine is high passage egg-embryo type, desiccated vaccine. Vaccination of dogs and cats has taken place in all exposed Ontario areas with a total of approximately 90,000 dogs and cats being vaccinated in 302 clinics throughout the province.

Recently all northern Ontario areas were visited with the provincial wild life authorities and the general opinion is that with the exception of one area the fox population is well below that of last year. While it is extremely difficult and dangerous to forecast a future disease picture this reported dropping of the fox population level is extremely encouraging and it is hoped that this trend will be reflected in the rabies picture during 1957.

With respect to the area where the fox population is reported as still high arrangements have been made to vaccinate all dogs and cats in advance of a possible rabies outbreak. It is the intention of the Health of Animals Division to follow this pattern of vaccination in advance whenever possible and practical in areas where potential infection can be forecast.

The Health of Animals Division is extremely grateful to the provincial wild life services for their generous co-operation and help in all phases of the rabies control programs. We also appreciate and are grateful for similar help and co-operation from the provincial department of health and local medical officers of health and their staffs.

With respect to the control of dogs in exposed areas, where municipalities have dog tie-up regulations a request is made that these regulations be enforced. To date, every co-operation has been received from the municipalities concerned and the problem of dogs running at large and stray or ownerless dogs is much improved. If municipal dog laws are not considered adequate to control the situation, authority is available under the Animal Contagious Diseases Act and certainly would be used to impose strict tie-up regulations.

The control and prevention of rabies always has been and always will be a difficult task. In order to effect adequate safety for all there must be complete understanding and sympathy for control measures. We, as a group concerned with public health measures, must spearhead not only the work but also public understanding and support.

The Supervision of Swimming Pools

ALEX CROSS, C.S.I.(C)¹

SUPERVISION of swimming pools is required to protect the health of the public when bathing in an indoor or outdoor public pool. Those using a swimming pool should feel assured that the pool is properly operated and that their health is not being endangered.

To inspect and supervise a swimming pool intelligently one must follow certain rules and regulations. Some provinces in Canada have regulations made under their public health acts setting forth the conditions under which a swimming pool may be constructed and operated. These regulations reflect the best practice in this field and include both Canadian and American experience. Of special importance are the reports of the American Public Health Association.

Occasionally it is found that after long periods without complaints combined with fairly satisfactory results of bacteriological tests of the pool water samples there is a tendency towards laxity on the part of pool operators. To overcome this, in one instance, the inspector had only to vary his usual routine. Instead of taking water samples in the morning he changed to afternoon sampling and testing and the plate counts and orthotolidine tests were no longer satisfactory. The inspector's interpretation of the poorer results and his explanation that a near maximum load of patrons used the pool in the afternoon was sufficient to arouse the operator from his lethargy. The education of the pool operator is one of the most effective ways of reducing the number of problems encountered in the operation of his pool. This can be done with each operator individually or by the operators attending as a group a series of talks and demonstrations given by representatives of the local health department. It is advantageous to hold such talks and demonstrations at one of the swimming pools. The need for this kind of education should be apparent to those in charge of the inspections of swimming pools and in case that need requires an impetus, the inspectors should read again the articles "An Interim Report on Ocular Diseases Due to APC Viruses in Ontario" (1) and "Surface Film on Swimming Pools" (2).

Broadly speaking there are three types of swimming pools:

1. *Fill and draw pools*, where the cleanliness of water is maintained by complete removal and replacement of water at periodic intervals.
2. *Flow-through pools*, where the cleanliness of water is maintained by circulation of water through the pool from some natural or developed source but where the overflowing water is wasted.
3. *Recirculating pools*, where the cleanliness of water is maintained by means of filters, the water being kept in circulation by pumps.

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This article deals with recirculating pools located indoors.

Experience seems to indicate that the better indoor pools are located in buildings that were meant, for the most part, to hold just a swimming pool. Problems arise when a swimming pool is a secondary consideration in a building already housing club rooms, billiard rooms, bowling alleys, badminton courts, gymnasiums, lunch counters, etc. When a swimming pool is in a building by itself there is usually less trouble with lighting, ventilation, heating, drainage, acoustics, necessary space and layout arrangements.

INSPECTING A POOL

It is suggested that for a start the inspector should follow the route of the bather. Having entered the building and paid an entrance fee (a usual procedure in all but private pools) the patron probably receives a piece of soap, a towel and a bathing suit, plus a bathing cap for ladies. One's problems may begin right here, especially if patrons are allowed to bring their own suits. There is much less trouble when the pool operator provides soap, towels, suits and caps. By so doing the cleanliness of suits and towels is assured and the patron is provided with soap to cleanse himself under the shower before entering the pool. In addition, all suits and trunks will be of simple design with no elaborate suits of varied material that could add extraneous dirt, dye and refuse to the pool water. It is suggested that nude bathing be practiced in pools used exclusively by men.

On obtaining towels, swim suits, etc., males and females go their separate ways. This should be no problem but some layouts are less than ideal. One pool is recalled where, although there was no connection between them, the dressing rooms and shower rooms of males and females were along one side of the pool. As the pool catered to children and adults there were four entrances, the one for male adults being well along towards the deep end. It is much safer to have all the entrances to the pool placed near the shallow end. This can best be accomplished by having dressing and other rooms for females on one side of the pool and the facilities for males on the other side of the pool. All this is more easily provided when the building houses only a swimming pool.

Having reached the dressing or locker room there should be only one way for the bather to enter the pool. Starting with a healthy bather and with no deviation from the prescribed route, that is, from the locker room, to the toilet room, to the shower, to the pool, over clean, sanitized floors and platforms or decks there will be less danger of the bather adding harmful bacteria and extraneous dirt to the pool water. It is felt, and rightly so, that insufficient emphasis is placed on ensuring that all bathers are clean or reasonably so before entering the pool water. It is sometimes a problem to ensure the cleanliness of each bather before entering pool water but with sufficient attendants using a combination of education and mild discipline the problem can be met. The attendants should be on the watch for bathers who by-pass the showers, or who may have skin eruptions, boils, cuts, colds, etc., and should refuse the privileges of the pool to such bathers. Having passed an attendant's inspection, the bather may or may not be confronted with a foot bath. Many bathers

consider a foot bath just an obstacle or obstruction to be overcome. Should their use be continued? If the answer is in the affirmative the foot bath should be large enough to prevent being jumped over, 3 inches to 4 inches in depth, the water in the foot bath should contain 3,000 to 6,000 parts per million of available chlorine, and the bather should keep his feet in the bath for at least one minute. Failing compliance with these requirements the use of foot baths is of doubtful value. If the floors of locker rooms, toilet rooms and shower rooms and the platforms or decks around the pool are properly constructed, properly drained, and are washed and scrubbed daily there is less need for a healthy bather to use a foot bath.

On entering the pool room, *at the shallow end*, the bather should "feel" the cleanliness of the place and perhaps sense the attraction of clean, safe water. Before entering the water he will note the markings clearly denoting the depth of water. The bather should never be in doubt as to the depth of water anywhere in the pool. Markings in one-foot increments are preferable. Non-swimmers should stay in the non-swimming area. With provision of safety equipment such as pole hooks, ropes, buoys, first aid kit, the presence of life-guards and swimming instructors, and the pool filled with clean, safe water the patron is ready to bathe or swim. When he leaves the pool he retraces his steps the way he came—from the shallow end of the pool to the showers, to the toilets to the locker room. After dressing, the towels and suits are returned to the management who must ensure there is no possibility of used towels and suits being mixed with clean towels and suits. So much for the patron. If he feels he has been in clean, comfortable surroundings and bathed in a clean, safe water he has probably enjoyed himself and will come back.

CONSTRUCTION AND OPERATION OF A POOL

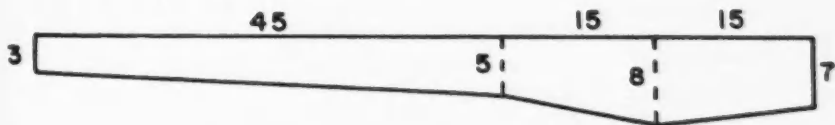
The official report of the American Public Health Association entitled "Recommended Practice for Design, Equipment and Operation of Swimming Pools and Other Public Bathing Places" published in 1949 should be read, studied and practiced by all operators and supervisors of swimming pools. This report presents in detail the proper construction, layout and operation of swimming pools. Description of the various tests used is presented in "Standard Methods for the Examination of Water, Sewage and Industrial Wastes", Tenth Edition, published by the American Public Health Association and approved by the Canadian Public Health Association for use in Canada. The methods include tests for available chlorine, tests for hydrogen-ion (pH) concentration and bacteriological tests.

Problems in swimming pool operation even in properly constructed pools do occur but omitting mechanical failure they are due mostly to laxity, neglect, or ignorance. Many problems are eliminated when the source of water for the pool is a safe water supply entering the building. This is usually the case when the supply entering the building is the potable water provided by the municipality. Cross-connections for the water supply or for pool drainage should be avoided. Probably the best way to prevent the water supply being cross-connected is to supply the water for the pool through a float-controlled constant level box or tank into which water discharges through an air gap at least six inches above the overflow level.

The problem of murky water can be annoying. It can be difficult to control when the filters and pumps are not large enough. It is recommended that the pumps be of a capacity to ensure a complete replacement of the pool water every six to eight hours. They should also be capable of providing at least 15 gallons of water per square foot of filter area per minute for back-washing and, if no auxiliary pump is installed, be capable of efficiently operating the suction cleaner. Experience has shown that frequently the pumps have not sufficient capacity for efficient back-washing. The solution is an auxiliary pump. The rate of filtration should not exceed three gallons per minute per square foot of filter surface. The operator of a pool may wonder if his filters are the proper size. A simple calculation provides this information. If a pool contains approximately 121,000 gallons and the water is turned over every six hours then 336 gallons per minute must be filtered. At 3 gallons per minute per square foot of filter approximately 112 square feet of filter area is required. As a filter six feet in diameter has 28.2744 square feet of surface it would be necessary to install at least four such filters to give the required filter area.

If the pumps and filters are large enough and in working order something else is the cause of the murky water. Perhaps the maximum bathing load is being exceeded. In the "Official Report" two guides are given for information on the subject. Results of calculations on these guides should never be exceeded because the extra bathers may add more dirt than usual to the pool water placing a further burden on the filters. Exceeding the specified bathing load often reduces the time spent by each bather under the showers. To prevent murky water, keep below the maximum bathing load; keep properly sized pumps and filters in proper working order; practice frequent and proper back-washing and keep the rate of flow under 3 gallons per minute per square foot of filter area. In addition start each day with a clean pool. If necessary, raise the level of the pool water and skim off the extraneous film of dirt, oil or grease floating on the surface of the pool. Use the suction cleaner intelligently and efficiently to clean the bottom of the pool.

Some operators are at a loss to determine how much water the pool contains. Again a simple calculation will give a nearly accurate answer. A pool is 75 feet long, 50 feet wide with depths and other measurements as shown in the following diagram:



MEASUREMENTS IN FEET

Contents in Imperial gallons: using mean depths

$$\begin{aligned}
 & (45 \times 4 + 15 \times 6.5 + 15 \times 7.5) \times 50 \times 6.24 \\
 &= (180 + 97.5 + 112.5) \times 50 \times 6.24 \\
 &= 390 \times 50 \times 6.24 \\
 &= 19,500 \times 6.24 = 121,680 \text{ gallons}
 \end{aligned}$$

If the above pool is chlorinated by means of a solution of chlorine gas in water, has a turn-over every six hours and the operator through experience knows the chlorine demand is 1 ppm to maintain a residual of 0.5 ppm he can approximately determine the amount of chlorine in *pounds* required daily.

$$\begin{aligned} 1 \text{ lb. in } 1,000,000 \text{ lb.} &= 1 \text{ ppm} \\ 1 \text{ lb. in } 100,000 \text{ gallons} &= 1 \text{ ppm} \\ \therefore \text{ for } 121,000 \text{ gallons it will require} \\ &\frac{121,000}{100,000} = 1.21 \text{ lb. chlorine} \end{aligned}$$

For four turn-overs daily it will take $1.21 \times 4 = 4.84$ lb. of chlorine to maintain a residual of 0.5 ppm when the demand is 1 ppm.

The amount will vary according to the demand. For example, if the demand were 2 ppm to maintain a residual of 0.5 ppm the amount required would be 9.68 lb. of chlorine per day.

If instead of using chlorine gas a high test hypochlorite solution containing 70 per cent available chlorine were used it would require $4.84 \div 0.7 = 6.9$ lb. to maintain a residual of 0.5 ppm when the chlorine demand was 1 ppm.

An operator sometimes receives complaints of sore eyes either after a bather has left the pool or during the time he is in the pool. A careful adjustment of the pH concentration may prevent conditions conducive to sore eyes. When the recommendations suggest higher chlorine residuals the pH should be raised accordingly and soda-ash used judiciously to maintain the desired alkalinity.

The inspector should know the difference between free available chlorine and combined available chlorine. Free available chlorine is the more effective bactericide. The approved tests for free available chlorine are the amperometric titration method and the orthotolidine arsenite (O.T.A.) method. Chlorine tests should be made *at least twice a day*. Results of research will be of great interest to pool operators if the present chlorine residuals are found to be too low to kill the APC viruses, the virus of infectious hepatitis and other viruses.

The pH can be measured either colorimetrically or electrometrically. The latter method is approved in "Standard Methods". The pH concentration should be measured *at least twice a day*.

The supervision of swimming pools is enhanced and problems are fewer when the operator keeps proper daily records. Often the perusal of daily records provides a clue or hint towards the solving of problems. These records should include the time of sampling and the results of all chlorine residuals, pH tests, bacteriological analyses, water temperatures, together with any other tests that may be made. The records should include the number of patrons (listed as to males and females and whether adults or children), the peak bathing loads handled, and the volume of new water added daily. Records should be kept of the amount and kind of chemicals used; the actual time the pumps and filters are in operation; when back-washing took place; and when repairs, alterations and replacements were made. Records with regard to expense accounts, admission fees and payment of bills should be the responsibility of the management and not of the operator. The operator should be left to operate the pool and to keep his own records without the responsibility of attending to a multiplicity of other jobs. His job should be a full-time one. The operation of a pool should include the training of thoroughly reliable assistants.

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Further Observations on the Combined Antigen—TABTD

The Effect of Time Interval between Primary Inoculations on Response to the Diphtheria Toxoid Component.¹

WING COMMANDER R. L. WALSH, M.D., D.P.H.² and
MISS M. J. MACQUARRIE, B.Sc.³

A report on the development and the first field trials of a special antigen combining TABT with a small amount of diphtheria toxoid was undertaken in 1948 by the RCAF in collaboration with the Connaught Medical Research Laboratories. The results of the preliminary field trials, using a combined antigen containing diphtheria toxoid (TABTD) in the concentration of 2 Lf per ml., were reported in 1950 (1).

The preliminary studies were extended to a larger group in 1950, including personnel of the three armed services, using a combined antigen (TABTD) containing 4 Lf per ml. purified diphtheria toxoid adsorbed on aluminium phosphate. The findings of these trials were published in 1951 (2).

In view of the evidence of the satisfactory antigenicity of the diphtheria component of TABTD found in these trials, it was recommended that the material used in these studies be adopted for general use in the Canadian military forces in lieu of the Schick test, alum-precipitated diphtheria toxoid, and TABT. This recommendation was approved by the three services and the new product TABTD was introduced in June, 1951, for use in the immunization of personnel of the Canadian armed forces. Later the diphtheria toxoid component was reduced from 4 Lf to 2 Lf per ml.

The successful application of this combined antigen is of great administrative importance to the armed services. Besides effecting substantial economy, it reduces from six to three the number of injections to be received by a new recruit during his first two months in the service. More important still, it would seem reasonable to expect that the material developed may have a wide application in civilian defence.

FURTHER STUDIES

It was desirable to reduce the customary interval of four weeks between each of the three primary inoculations of TABTD. Accordingly, it was decided to conduct field trials to assess the effectiveness of immunization schedules with shorter intervals between inoculations. These trials were carried out in 1953 and 1954.

¹These studies were carried out by the Connaught Medical Research Laboratories, in collaboration with the RCAF Medical Service, under a grant from the Defence Research Board of Canada.

²Directorate of Medical Services, RCAF, Ottawa.

³Connaught Medical Research Laboratories, Toronto.

In both trials the combined antigen TABTD used, contained the following constituents per ml.: *S. typhi* 750 m; *S. para A* 250 m; *S. para B* 250 m; tetanus toxoid 10 Lf; diphtheria toxoid adsorbed on AlPO_4 2Lf.

The 1953 Field Trial

In the 1953 trial the interval between primary inoculations was fixed at two weeks. For reasons of expediency and to avoid disturbance to service training schedules, pre-inoculation immunity tests were dispensed with and three primary doses of 1 ml. TABTD with an interval of two weeks between injections were given subcutaneously to each of 85 men.

Five to six weeks after the third inoculation, a sample of blood was taken from each of the 85 men and a Schick test carried out on each man. The blood samples were sent without delay to the Connaught Medical Research Laboratories where titration for tetanus antitoxin was carried out by the mouse method. The Schick tests were read seven days after the tests had been performed.

Immunity Response

The tetanus antitoxin titration tests showed that, five to six weeks after the third primary dose of TABTD, all of the 85 men had more than 0.1 unit tetanus antitoxin per ml. of blood serum.

Only 82 of the 85 recruits were available for reading of the Schick test. Of the 82 men, seven were Schick positive and 75 or 91 per cent were immune to diphtheria as judged by the test.

These seven non-immune recruits were given a booster dose of 0.5 ml. TABTD approximately three months after the third inoculation. Blood samples were obtained two weeks later from six of the seven men and diphtheria antitoxin titrations showed that five of these six had responded to the booster dose. Including the booster dose results, therefore, 80 of the 82 men showed the presence of circulating diphtheria antitoxin (98 per cent).

Discussion

Although no pre-inoculation immunity tests were conducted, the 1953 trials were concerned with *new* recruits and from previous evidence it could be expected that more than 70 per cent would be non-immune to tetanus. It is significant, therefore, that all of the men (85) had more than 0.1 unit tetanus antitoxin per ml. of serum, five to six weeks after three doses of TABTD with a two-week interval.

Because of the widespread use of diphtheria toxoid in childhood, a high proportion of new recruits (65-75 per cent) is immune to diphtheria on entry. In the face of this fact, the response to the diphtheria toxoid component in this trial, with the primary inoculations given at two-week intervals, was low (7 non-immune in 82 men) compared to that obtained in previous trials (1), (2).

The 1954 Field Trial

In view of the results obtained in the 1953 trial, it was decided that a further trial should be undertaken in which the three primary injections of

TABTD would be given over a period of five weeks instead of four, with an interval of three weeks between the first and second injections, and an interval of two weeks between second and third injections. It was also decided to limit the trial to non-immunes, i.e. men with less than 0.001 unit diphtheria antitoxin per ml. serum. The composition and dosage of the antigen was unchanged.

Blood samples were taken from a group of 312 recruits before the first TABTD inoculation was given. Titrations showed that 111 of these men had less than 0.001 unit of diphtheria antitoxin per ml. of serum; this group of 111 men was selected for the trials, although all of the 312 men were given three doses of TABTD according to the prescribed schedule. Blood samples were again taken on the trial group 4 to 6 weeks after the third injection of TABTD.

Blood samples were obtained from 77 of the 111 men who had the prescribed course of inoculations. Of these, 75 or 97.5 per cent showed the presence of diphtheria antitoxin (> 0.001 units per ml.) and only two failed to respond. The over-all immunity of the initial group of 312 recruits was, therefore, of the order of 99 per cent since 201 had over 0.001 unit diphtheria antitoxin per ml. prior to the course of inoculations.

SUMMARY

Field trials were conducted in 1953 and 1954 to examine the effect of varying the intervals between the three primary inoculations of TABTD. In the 1953 trial an interval of two weeks between doses was used; in the 1954 trial an interval of three weeks between the first and second and two weeks between the second and third injections was used.

In the 1953 trials, all of the men responded to the tetanus toxoid component.

The response to diphtheria toxoid differed in the two trials. In the 1953 study, on an unselected group without pre-inoculation immunity testing, the response to diphtheria toxoid, as measured by the Schick Test, was low compared with that in previous trials. In the 1954 trial, on a selected non-immune group, the response to diphtheria toxoid was eminently satisfactory (97.5 per cent), comparing favourably with the response in earlier studies with TABTD where the interval between injections was three to four weeks.

ACKNOWLEDGEMENTS

Acknowledgement is made to Dr. P. J. Moloney of the Connaught Medical Research Laboratories, Toronto, and to Group Captain A. H. Sellers, Consultant in Medical Statistics to the RCAF, for their helpful advice.

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Canadian Journal of Public Health

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RABIES CONTROL IN CANADA

In this issue of the Journal Dr. K. F. Wells, Veterinary Director General of Canada, tells how the rabies problem has altered because the reservoir of infection has changed from dogs to wild animals, particularly foxes. The Department of Agriculture of Canada is to be congratulated on the effectiveness of the measures taken to control the outbreaks in the Arctic and in the northern sections of the provinces of Alberta, Saskatchewan and Ontario. Vaccination of large numbers of dogs was conducted by officers of the Department as one part of the control program. In this vaccination the living attenuated rabies virus grown in chick-embryo, Flury strain, (high egg passage) given in one injection was effectively employed. The prompt institution of control measures involving the vaccination of large numbers of dogs in the affected areas will continue to be the best means of preventing extensive outbreaks.

In connection with rabies control, the World Health Organization through its Expert Committee on Rabies* is making valuable contributions. The third session of the Committee was held at the Institut Pasteur, Paris, last December. Three years had intervened between the second and third sessions of the Committee and a considerable amount of research, co-ordinated by the World Health Organization was carried out on various aspects of rabies, including the use of vaccines in animals, problems of field control and possible modifications of pre- and post-exposure treatment of humans. In regard to the latter, the striking effectiveness of rabies anti-serum plus vaccine in preventing rabies was shown in a group of persons severely bitten by a rabid wolf in Iran in 1954. Twenty-nine persons were bitten by the same rabid wolf, some received preventive treatment with phenolized vaccine only, while others received the same treatment associated with one or more serum injections. Of five subjects bitten on the head and receiving treatment with vaccine only, three died of rabies. Of thirteen subjects with the same type of bite receiving one or more injections of serum associated with vaccine treatment only one contracted rabies. In experimental work, serum in one or two doses completely suppressed antibody responses to three doses of HEP Flury vaccine and also prevented a response to a booster dose. It is recommended, therefore, that a complete course of phenolized vaccine be given when serum is included.

*Expert Committee on Rabies, Third Report, WHO Technical Report Series, No. 121, 1957.

Because of serum reactions it is recommended that serum be used only in very severe exposure after testing the person for sensitivity.

A new technique for protecting persons whose occupations expose them to the possibility of bites of rabid animals was outlined by the Committee. The method provides basic protection by the giving of very small doses of chick-embryo vaccine (HEP) or of phenolized vaccine followed by a small booster dose of vaccine after an interval of several months. In this work three intradermal doses are given with an interval of five days between doses. It is suggested that on subsequent exposures a booster dose be given in the case of mild or moderate exposure, and in the case of severe exposure a second booster dose one week later.

The successful control of rabies calls for a continuous and energetic educational campaign to support the local authorities in measures for the elimination of stray dogs and for canine vaccination. Such efforts are most effective when conducted at the local level and the support of the local health authorities is essential.

HEALTH INSURANCE

There is no need to emphasize the fact that health services are essential to every citizen and that one of the most important services is hospital care. Today, with the advances of medical science, hospital care is more necessary and more expensive. Further, it calls for an expenditure unexpectedly and for which provision is not usually made by individuals.

The plan of national health insurance presented a year ago by the Government of Canada to the provinces has now been accepted by British Columbia, Alberta, Saskatchewan, Newfoundland, Ontario and Prince Edward Island. Enabling legislation was passed by Parliament at the session just closed. The federal contribution, therefore, will now be available to those provinces having hospitalization plans and to the others when such plans are in effect. Saskatchewan has had an effective plan of hospital insurance for ten years and British Columbia for four years.

The new federal plan provides unlimited public ward care with diagnostic services in hospitals. There is no limitation as to the duration of stay in the hospital, age, or disability. The plan does not include hospitalization of mental patients or those in tuberculosis sanatoria since the Federal Government considered that provision for these was already being made by the provinces. The Ottawa contribution is calculated as 25 per cent of the average per capita cost for hospital services in Canada as a whole plus 25 per cent of the average per capita cost in the province itself, multiplied by the population covered. By this provision the provinces least able to bear the costs will receive the largest federal contribution. In general, the federal contribution represents about 50 per cent of the cost. Each province will pay for those persons receiving public aid, recipients of old age assistance, old age security, blind persons allowances, and other forms of social assistance.

The Canadian Public Health Association welcomes the progress which is being made and expresses the hope that the advantages of hospital insurance which are being made available to the citizens of six provinces may soon be available to all citizens of Canada.

Special Article

Television and Health Education¹

D. A. GEEKIE, B.P.H.E., C.P.H.

THE prevention of disease and the promotion of positive health attitudes, the primary aim of Canadian public health authorities, depends to a great extent on an informed, co-operative, and participating public. This necessitates a continual and progressive public health educational program. It is an accepted fact that the best method of health education is the person-to-person method. Television has the advantages of a mass medium without the loss of the personal effect. It combines the advantages of health teaching on a community basis, a family basis, as well as on an individual basis.

In August 1955, the Wellington County Health Unit produced its first television program, a thirty-minute presentation of the Health Unit's activities. This program was one of a series conducted by station CKCO-TV Kitchener entitled "Civic Centre". The program consisted of two panel discussions. The first panel was made up of members of the Wellington County Board of Health. The Board members explained what a health unit was, what it did, how it was financed, and for the benefit of the unorganized neighbouring counties, how it had been formed. The second panel was composed of Dr. B. T. Dale, the Medical Officer of Health, Dr. M. E.

Jarrett, the Dental Health Officer, and Miss Helen Fasken, the Director of Nursing. With the aid of film clips they discussed the various aspects of the Wellington County Health Unit services. In spite of the program's amateur "radio presentation with a few film clips" and mistakes, the station commended the attempt and hinted at the possibility of doing more in the future.

Early in 1956 the division proposed a series of eight half-hour programs on the following topics: General Public Health Program, Cancer Control, Tuberculosis Control, Heart Disease, Dental Health, Accident Prevention, Communicable Disease Control, The Child Health Centre. The plan was accepted on the basis that the health unit was to write, produce, direct and present the programs. The station was to provide its technical facilities, a staff member for consultation and Grade A Time from 9.00 to 9.30 p.m. each Monday evening. Our experience with the television station was most gratifying. They provided everything within their power. Not only did they provide very valuable commercial time free, they also had a cameraman available to take films in the field, and a film editor to cut and piece films, both those we made and those available from our film library. In addition, their entire staff gave of their time willingly to pass on many little tips that make a great difference in a TV production.

The programs were presented as a modification of the usual panel or dis-

¹Abstract of paper presented at the 45th annual meeting, Canadian Public Health Association, Toronto, Ontario, May 27-29, 1957 by B. T. Dale, M.D., D.P.H., Medical Officer of Health, Wellington County Health Unit, and D. A. Geekie, B.P.H.E., C.P.H., Health Educator.

cussion type program. Our panels were composed of local practising physicians, dentists, police, members of local voluntary health agencies, and authorities in the various fields, e.g., Dr. Lloyd Green, Director of the Hamilton Cancer Clinic, Dr. S. J. Hawkins, Director of Freeport Sanatorium, Dr. Glenn T. Mitton, Professor of Public Health Dentistry, University of Toronto, Professor G. E. Downing of the Ontario Agricultural College, and staff members of the Wellington County Health Unit. There were no professional actors involved in the presentations which produced problems but also provided the necessary authenticity. On the basis of our experience, we would recommend the practice of using only those working in the field in preference to professional actors. We found the presentation of the physicians and other health workers to be excellent. These workers have an intangible quality in their presentation which gives the viewers confidence in the information being presented. Non-professional actors require coaching in the methods of presentation but this is time well spent.

The cost of producing the eight half-hour programs amounted to approximately \$35.00 per program. It should be remembered, however, that the television station provided the film, cameramen, film editors, and other costly technical assistance; and that the panel participants donated their time and even paid their own transportation expenses. The cost in terms of personnel time was very heavy for all and particularly for the Medical Officer of Health and the Health Educator. Because private physicians, dentists, and other professional workers were involved, much of the planning, organization and rehearsing had to be done in the evening. Script writing, prop production

and the many details were attended to during the day. Was it worth it? Definitely! In addition to being an effective medium of educating individuals and families, TV most certainly fulfils the requirements of mass education.

While there has not been a formal evaluation of our series we know of several concrete results. The series has been described by the local physicians, the television station, and everyone concerned as a complete success. The television rating of the programs climbed steadily throughout the series. The Kitchener station estimated their audience from 250 to 300 thousand people for each program. In fact, the programs were so successful that the station requested that we continue the series in whole or in part throughout the year. We were sorry to have to refuse the offer. We could not produce on a continuing basis programs which would fulfil the requirements as outlined previously nor do we think that any local health department would be able to do so. This, of course, does not eliminate TV as a medium for our local Department. We still find it very helpful and even necessary for spot announcements and guest appearances in connection with short-term campaigns or promotions.

The people of Canada are becoming increasingly health conscious. They want accurate information on health, health preservation, and the prevention and cure of disease. The official health agency should be meeting this need for reliable information. Through the Canadian Broadcasting Corporation Network it would be possible to bring health information to over one-half of the Canadian homes and thus to millions of people. There is no other method of reaching so large a group so effectively.

The Canadian Public Health Association

Annual Report

1956-1957

PART I

REPORT OF THE COMMITTEE ON HONORARY LIFE MEMBERSHIP

J. T. Phair, M.B., D.P.H., Chairman

FOR MORE THAN TWENTY YEARS the Canadian Public Health Association has had the pleasure of awarding Honorary Life Membership to those who have rendered signal service in public health. The honour list has included health officers, public health nurses, and other members who have served in small communities as well as in large cities and those who have laid the foundations of public health in remote outposts. The roll of honour includes many who are recognized as outstanding leaders not only in Canada but in the United States and Great Britain.

The following are the awards that have been made throughout the years:

- 1934-1935—Surgeon General H. S. Cumming, Washington, D.C.
H. W. Hill, M.D., D.P.H., LL.D., London, Ontario.
M. Stuart Fraser, M.D., Winnipeg, Manitoba.
- 1935-1936—Walter H. Brown, M.D., Palo Alto, California.
A. J. Chesley, M.D., St. Paul, Minnesota.
J. W. S. McCullough, M.D., D.P.H., Toronto, Ontario.
Mr. E. S. Macphail, Ottawa, Ontario.
- 1936-1937—John A. Ferrell, M.D., New York City.
George F. Buchan, M.R.C.P., D.P.H., London, England.
Helen MacMurchy, C.B.E., M.D., Toronto, Ontario.
- 1937-1938—Seraphim Boucher, M.D., D.P.H., LL.D., Montreal, Quebec.
Alphonse Lessard, M.D., Quebec, Quebec.
H. E. Young, M.D., LL.D., Victoria, B.C.
- 1938-1939—Sir Arthur MacNalty, M.C.B., M.D., F.R.C.P., K.H.P., London, England.
A. J. Douglas, LL.D., B.A., M.D., C.M., F.R.C.P.(C), Winnipeg, Manitoba.
John Knox McLeod, M.D., Sydney, Nova Scotia.
John J. Cameron, M.D., Antigonish, Nova Scotia.

- 1939-1940—E. W. Montgomery, M.A., M.D., C.M., LL.D., F.A.C.P., Winnipeg, Manitoba.
Honourable J. M. Uhrich, Ph.C., M.D., Regina, Saskatchewan.
- 1941-1942—William Warwick, M.D., D.P.H., Fredericton, New Brunswick.
George Dana Porter, M.B., Toronto, Ontario.
- 1947-1948—P. S. Campbell, M.D., Halifax, Nova Scotia.
Arthur Wilson, M.D., Vancouver, British Columbia.
- 1951-1952—Malcolm R. Bow, M.D., D.P.H., Edmonton, Alberta.
Miss E. Russell, R.N., Winnipeg, Manitoba.
- 1954-1955—Lt. Col. Allan Coats Rankin, C.M.G., M.D., C.M., D.P.H., F.R.C.P.(C), Edmonton, Alberta.
Robert M. Shaw, M.D., D.P.H., F.R.C.P.(C), Edmonton, Alberta.
- 1955-1956—Roy Fraser, B.S.A., M.A., F.R.M.S., LL.D., Sackville, New Brunswick.
Margaret E. MacKenzie, Reg.N., Halifax, Nova Scotia.
John J. MacRitchie, M.D., C.M., Halifax, Nova Scotia.
Mac Harvey McCrady, B.S., D.Sc., Montreal, Quebec.
Freeman O'Neil, M.D., Sydney, Nova Scotia.
Joseph P. Richard, M.D., Petit Rocher Nord, New Brunswick.

COLIN FRASER BROCKINGTON, M.A., M.D., B.Chir., D.P.H.

(Cambridge), M.Sc. (Manchester), M.R.C.S., L.R.C.P., of the Middle Temple, Barrister-at-Law.

FEW PUBLIC HEALTH LEADERS in Great Britain are better known on this continent than Dr. Colin Fraser Brockington. In his academic training he received the degrees of M.R.C.P. (London), M.R.C.S. (England), M.A. (with Honours), B.Chir., M.D., and D.P.H. (with distinction). His training in Law as Barrister, Middle Temple, has been a valuable asset in his chosen field of work. Commencing his career in public health he served as County Medical Officer of Health in Worcestershire, 1930-1933 but resigned this appointment in order to acquire further medical experience in general practice at Kingsbridge, Devon. His basic interest in social welfare brought him back to the public health field and he was appointed in 1936 Deputy County Medical Officer of Health for Warwickshire and shortly thereafter was appointed County Medical Officer in which position he continued until 1946. In that year he accepted the position of County Medical Officer in West Riding and served there until his appointment in 1951 as Professor of Social and Preventive Medicine in the University of Manchester.

Dr. Brockington has given generously of his time to voluntary and official agencies, being a member of several advisory councils of the Ministry of Health and of the Council of the Society of Medical Officers of Health of Great Britain and the Royal Society of Medicine. He has contributed many scientific articles and has published several books including "Principles of Nutrition" (1952), a text-book for students entitled "Health of the Community" (1953) and "Medical Officers of Health 1848 to 1855" (1957).

In 1954, Dr. Brockington visited Canada on the occasion of the Fifth International Conference on Mental Health and served as chairman of the research symposium on "Mental Health and Public Health Partnership". He has recently returned from a visit to a number of Asian countries as an ambassador of health under the auspices of the World Health Organization.

To public health workers in Canada and the United States Dr. Brockington is known for the quarterly "Letter from Great Britain" that he has contributed to the Canadian Journal of Public Health. These letters have constituted a review of the development and progress of social and medical movements in Great Britain throughout the past decade. His many friends on this continent have looked to the Journal to learn of the significant developments in Britain which they knew Dr. Brockington would discuss in his quarterly letter. The increasing pressure of his responsibilities in the University of Manchester and his active participation in the World Health Organization as well as his work on committees in Great Britain have necessitated a discontinuance of his contribution of the quarterly letter to the Journal. This has been received with great regret but we realize that Dr. Brockington has been more than generous to us.

We honour him for his outstanding work as a medical officer of health in Great Britain, for the valuable service which he is rendering as a university teacher in the University of Manchester, for his contribution to our Association, and we honour him for his world-wide service in public health and his devotion to the social welfare of mankind.

FLORENCE H. M. EMORY, R.N.

FLORENCE EMORY is known to a very large number of public health workers in Canada and throughout the world as teacher, associate and friend. She has given leadership in the development of public health nursing and nursing education and has contributed to the work of health agencies and professional organizations through service on committees and planning bodies.

Born in Niagara Falls the daughter of a clergyman, Miss Emory was a member of a family that believed in community service and had a high regard for intellectual endeavour. Through living and serving with her family in many communities in Ontario she grew to understand and have a warm regard for people.

Miss Emory received her preparation for nursing at the former Grace Hospital (now affiliated with the Toronto Western Hospital). In 1915, she received the diploma in nursing and in the same year joined the staff of the Toronto Department of Public Health. During her period of service in this department she worked with two outstanding leaders in the health field, Dr. Charles J. O. Hastings, then Medical Officer of Health, and Miss Eunice Dyke, director of the division of public health nursing. During eight years with the Department of Health, Miss Emory advanced quickly and became the first supervisor of school nursing when this service was transferred from the Board of Education to the Department of Public Health.

In 1923, Miss Emory was awarded a fellowship for a year of study in Boston at Simmons College and the Massachusetts Institute of Technology. She then joined the staff of the University of Toronto Department of Public Health Nursing which had been organized in 1920 to prepare nurses for service in the public health field. In 1933, the Department of Public Health Nursing became part of the new School of Nursing of the University of Toronto.

Throughout her years in academic work Florence Emory, in association with Kathleen Russell the director of the school, strove to improve the education of nurses. This work culminated in the development of a basic degree course in nursing in which the preventive and curative aspects are taught together and nurses are prepared for service in either the hospital or the public health field. Concurrently with this development, courses for graduate nurses were extended to include preparation for staff and supervisory positions in both certificate and degree courses. Miss Emory assumed particular responsibility for leadership and teaching in public health nursing. In 1938, she was appointed associate director of the school and in 1953 she was appointed full professor. In 1945, she published the first Canadian text-book in public health nursing, entitled "Public Health Nursing in Canada."

Miss Emory retained an active association with health agencies and professional organizations during her years of service in the university. She was the first chairman of the Public Health Nursing Section of the Canadian Public Health Association following the organization of the section in 1925. She was chairman of the Nursing Committee of the Ontario Division of the Red Cross from 1935 to 1952, and has been Honorary Adviser in Nursing of the Canadian Red Cross Society since 1952. Her service to this organization was recognized in 1953 when she was awarded the Florence Nightingale Medal by the International Committee of the Red Cross. She has served as chairman of the Nursing Advisory Committee of the Victorian Order of Nurses, Toronto Branch, since 1949.

Miss Emory also gave leadership in the organization of the nursing profession, and was the first president of the Registered Nurses' Association of Ontario from 1927 to 1930 and the tenth president of the Canadian Nurses' Association from 1930 to 1934. She contributed to the development of the International Council of Nurses as chairman of the Membership Committee from 1933 to 1953. Upon her retirement from the University of Toronto in 1954 Miss Emory was honored in being appointed Professor Emeritus in the School of Nursing.

The Canadian Public Health Association is privileged to pay tribute to Miss Florence Emory for her great contribution to nursing education and to the development of public health nursing in Canada.

FREDERICK W. JACKSON, M.D., D.P.H.

THE ACCOMPLISHMENTS OF FRED W. JACKSON in public health in Canada have been signally recognized on this continent by the awarding to him of the Sedgwick Memorial Medal at the eighty-fourth annual meeting of the

American Public Health Association last November. It is indeed fitting that the Canadian Public Health Association should at this annual meeting confer Honorary Life Membership upon Dr. Jackson in tribute to his outstanding contribution to public health.

Last fall he retired as Director of Health Services in the Department of National Health and Welfare having completed more than forty years of professional work and official service. It is pleasing that he is continuing his relationship with the Department in an advisory capacity. His unique success in health administration has been due to his years of experience in Manitoba in medical practice. During these years he served as a part-time medical officer of health.

Dr. Jackson was with Number 5 Canadian General Hospital in Salonika, Greece during World War I. In 1928, he entered the Provincial Department of Health and Welfare of Manitoba as director of the division of disease prevention. He received the Diploma in Public Health from the University of Toronto in 1930. From 1931 to 1948 Dr. Jackson served as Deputy Minister of Health and Public Welfare. In this position, he developed the renowned Manitoba Health Plan based on the findings of a two-year sickness survey in 1938, and a survey of public health needs made in 1941 by Dr. Carl E. Buck of the American Public Health Association. This plan was introduced in 1945 and it was due to his vision and untiring efforts that Manitoba has a unique and highly effective health program, integrating hospital services, public health, laboratory and diagnostic services. With such experience, his services were quickly requested by the Department of National Health and Welfare to assist in establishing health insurance studies and to serve temporarily as director. Within a few months, it was appreciated that his services were essential and he retired from the Manitoba Civil Service in 1948.

In 1951, Dr. Jackson visited a number of European countries to study health insurance plans and the problems of medical and hospital care. The reports which he presented to the Department of Health were of great value.

Dr. Jackson has been recognized as a most experienced public health administrator and has specialized in the problems of medical care. The provision of a national hospital insurance plan for Canada as part of a future national health insurance service must indeed be gratifying to him.

To the Canadian Public Health Association he has given generously of his time, serving on various committees and as President of the Association in 1935.

For his great contribution to the advancement of public health in Manitoba and in the whole of Canada and for his service to the Association, the Canadian Public Health Association honours Dr. Jackson.

EVERITT GEORGE DUNNE MURRAY, O.B.E., M.A. (Cantab.),
L.M.S.S.A., M.D. (Montreal), D.Sc. (McGill), F.R.S.C.

THE LABORATORY SECTION of the Canadian Public Health Association was formed in 1932 and among its charter members was Everitt George Dunne

Murray, Professor of Bacteriology and Immunology, McGill University. The status of this Section over the passing years has been greatly strengthened by the unfailing support, contributions, wise counsel, pungent criticism and colourful presence of Professor Murray, who has served on its committees and executive and who was Chairman of the Section in 1938.

It would be impossible to recount in full here his long and distinguished career nor is it necessary to do so for one so well-known and widely honoured. Born in South Africa in 1890, Dr. Murray's professional education was obtained at the University of Cambridge and at St. Bartholomew's Hospital in London. During the First World War he rendered distinguished service with the R.A.M.C. in the study of dysentery and meningitis and was awarded the O.B.E. (Military Division) in 1918. Returning to the University of Cambridge, he pursued an active and brilliant career in teaching and research. This period was marked among other things by the publication of a still authoritative monograph on the *Meningococcus* and by the discovery of *Listeria monocytogenes*.

Assuming the Chair of Bacteriology and Immunology at McGill University in 1930, Professor Murray proceeded to build an outstanding department of research and under-graduate and graduate teaching in Microbiology as well as serving as Bacteriologist-in-Chief and Consultant to various Montreal hospitals. His talents were soon in demand in many directions, and he assumed editorial responsibilities with Bergey's Manual of Determinative Bacteriology and with the American Journal of Medical Sciences. During and since the Second World War, he served the Canadian Government in a number of advisory capacities in relation to Biological Warfare and other medical problems and in 1953 was honoured by appointment to the Honorary Advisory Council of the National Research Council. He also found time to serve on the City Council of Montreal for a number of years and to publish philosophical speculations on scientific subjects.

Professor Murray was made a Fellow of the Royal Society of Canada in 1938, was awarded the Medal of Freedom by the United States War Department in 1947, received the Flavelle Medal from the Royal Society of Canada and the Coronation Medal of Queen Elizabeth II in 1953, and was honoured with the degree of Doctor of Medical Sciences by the University of Montreal and the degree of Doctor of Sciences by McGill University in 1955.

Retirement from McGill University was followed by appointment as Visiting Research Professor in the Department of Medical Research at the University of Western Ontario and it is fortunate for all that his scientific career still goes on.

We in the Canadian Public Health Association are delighted to have Professor E. G. D. Murray entered on the roll of Honorary Life Membership. In particular, the Laboratory Section looks forward to a long and fruitful association and to stimulating contributions and companionship in the years ahead.

REPORT OF THE SUB-COMMITTEE ON RECOMMENDED
QUALIFICATION REQUIREMENTS AND MINIMUM SALARIES FOR
PUBLIC HEALTH PERSONNEL IN CANADA
(COMMITTEE ON PROFESSIONAL EDUCATION)

J. H. Baillie, M.D., D.P.H., Chairman
William Mosley, M.D., D.P.H., Secretary

IN 1956 THIS COMMITTEE was requested to revise the Association's report on Recommended Qualifications and Requirements and Minimum Salaries for Public Health Personnel in Canada. The first report of this Committee was published in 1946 and there were subsequent revisions in 1948 and 1951. During the past year revised data have been collected from the ten provinces and in 1957 a report will be presented to the Executive Council at the Annual Meeting. If accepted, the report will be published by the Association in the near future. All those agencies taking part in the survey will receive copies of the report when it is published.

REPORT OF THE LABORATORY SECTION

F. O. Wishart, M.A., M.D., D.P.H., Secretary

THE TWENTY-FOURTH ANNUAL MEETING of the Laboratory Section was held at the Chateau Laurier, Ottawa on December 10 and 11, 1956 and proved to be one of the most successful on record. Among the 110 persons registered were representatives from nine of the ten provinces and a number from various points in the United States.

The scientific program occupied one and one-half days and consisted of twenty-four papers of high quality covering a wide range of subjects. On the second afternoon visits were made to the new Laboratory of Hygiene, Virus Division and the Laboratory, Food and Drug Division.

A pleasant feature of the program was the luncheon meeting which was addressed by Dr. D. Leo Dolan, Director, Canadian Government Travel Bureau, Ottawa, on the subject of "Know Canada Better". Due to special circumstances, the Chairman, Dr. Armand Frappier, was, unfortunately, unable to be present and our thanks go to Dr. P. H. Greey, Vice-Chairman, and Dr. V. Fredette who acted for him. Special thanks are due Dr. E. T. Bynoe, who helped greatly with local arrangements for the meeting.

Officers elected for 1957 were as follows: Chairman, Dr. P. H. Greey, Toronto; Vice-Chairman, Dr. J. C. Wilt, Winnipeg; Secretary, Dr. F. O. Wishart, Toronto; Council, Dr. C. E. Dolman, Dr. H. Robertson, Dr. C. E. Van Rooyen, Dr. E. T. Bynoe, Dr. J. Archambault and Dr. I. Moynihan.

It is with deep regret that we record the death of a Council member, Dr. I. Moynihan of the Animal Diseases Research Institute, Hull, Quebec. Dr. Moynihan was a most valued member of our Section.

Abstracts of the twenty-four papers appeared in the January issue of the Journal.

ASSOCIATION NEWS

Saskatchewan Branch

The third meeting of the Canadian Public Health Association, Saskatchewan Branch, was held in Saskatoon at Convocation Hall, University of Saskatchewan on April 23 and 24.

The symposium on mental health featured as speaker, Dr. D. G. McKerracher, professor of psychiatry, University Hospital. Dr. S. C. Best, director of child and maternal health for the Department of Public Health, moderated the discussion. Miss Elizabeth Kasey, safety consultant, Metropolitan Life Insurance Company, New York, was the speaker in the accident prevention symposium which was moderated by Dr. A. E. Buckwold, paediatric consultant. New views on nutrition needs were presented by Dr. L. B. Pett, chief, Nutrition Division, Department of National Health and Welfare to a symposium moderated by Dr. Hugh Robertson, director of the Saskatchewan Provincial Laboratories.

Manitoba Public Health Association

Over one hundred members of the Manitoba Public Health Association gathered in Winnipeg on April 22 for the spring General Meeting of the Association and to participate in a program devoted entirely to the problem of accident prevention. All speakers and participants in the panel discussions agreed that education of adults and children is the greatest weapon and the greatest need in combatting the increasing number of accidents.

British Columbia Branch

The annual meeting of the British Columbia Branch was held in Vancouver on April 23. Nominations for incoming officers took place during the business meeting and the following

members were elected to the Executive: President: Dr. Susan McMaster, Vancouver Metropolitan Health Committee; First Vice-President: Dr. A. Larsen, Director of V.D. Control, B.C. Department of Health; Second Vice-President: Miss Barbara Smith, Supervisor, Simon Fraser Health Unit; Secretary: Mrs. D. Slaughter, Consultant, Public Health Nursing, B.C. Department of Health; Treasurer: Miss Muriel Upshall, Public Health Nurse, University of British Columbia; Executive Members: Miss K. Perkins, Public Health Nurse, Vancouver Community Chest and Council; Dr. W. Sunderland, Vancouver Metropolitan Health Committee; Mr. W. Wookey, Sanitary Inspector, Vancouver Metropolitan Health Committee; Past President: Mr. R. Armson, Sanitary Inspector, Burnaby Health Unit.

New Brunswick—Prince Edward Island Branch

The fifth annual meeting of the New Brunswick—Prince Edward Island Branch was held in Moncton on April 25 and 26. An address of welcome was given by the Honorable J. F. McInerney, Minister of Health and Social Services for the Province of New Brunswick. The following officers were elected for the coming year: President: Miss Mona Wilson; First Vice-President: Dr. R. S. Langstroth; Second Vice-President: Dr. R. D. Landry; Secretary-Treasurer: Miss Ray McKenzie; Additional members of the Executive Committee: Dr. A. M. Clarke; Mr. H. G. Cantwell. Dr. Samuel Marcus, President, and Dr. W. I. Bent, Dr. J. C. Wickwire and Miss Phyllis Lytle of the Executive of the Atlantic Branch attended the sessions as guests of the New Brunswick—Prince Edward Island Branch.

NEWS NOTES

International

A Commonwealth Chest Conference incorporating the annual conference of the British Tuberculosis Association will be held by the National Association for the Prevention of Tuberculosis, in London, England, July 1-4, 1958. The conference offers an opportunity for those interested in tuberculosis and diseases of the chest and heart, and other problems of preventive medicine, to meet workers in similar fields throughout the world, and to visit hospitals and clinics in Great Britain.

Federal

Dr. E. A. Watkinson, principal medical officer in charge of environmental health and special projects, and Dr. F. D. Sowby, clinical consultant in the Radiation Services Section, Occupational Health Division, Department of National Health and Welfare, attended the third session of the United Nations' scientific committee on the effects of atomic radiation, held in Geneva, Switzerland, in April. Presiding was Professor Zenon Bacq of Belgium, with Dr. Watkinson as vice-chairman. The two principal subjects discussed were the genetic effects of radiation and the committee's report to the United Nations General Assembly which is to be submitted in July 1958. Also studied were measurements of radiation levels, particularly with regard to radioactive fallout and strontium 90. The committee received 74 reports from 27 governments, as well as reports prepared by World Health Organization and the World Meteorological Organization. The committee plans to meet again toward the end of this year.

The Hospital Insurance and Diagnostic Services Act has received Royal Assent and was proclaimed effective on May 1. This will enable the federal government to enter into specific agreements with those participating provinces which have suitable legislation.

Four new members have been appointed to the National Research Council for a three-year term. They are Pierre R. Gendron, D.Sc., dean of the Faculty of Pure and Applied Science, University of Ottawa; Paul-Antoine Giguère, D.Sc., head of the department of chemistry, Laval University, Quebec; Leonard H. J. Shebeski, B.S.A., M.Sc., professor of plant science, University of Manitoba, Winnipeg; and Francis James Toole,

Ph.D., head of the chemistry department and dean of the School of Graduate Studies, University of New Brunswick, Fredericton. The retiring members are A. N. Campbell, Ph.D., F.R.S.C., University of Manitoba; Dr. G. E. Hall, President, University of Western Ontario, London; and Cyrias Ouellet, D.Sc., Laval University.

F. W. Rowse, assistant to the director, Information Services, Department of National Health and Welfare, died suddenly in Ottawa on April 13. Mr. Rowse, who had extensive experience in newspaper and radio work in Montreal and Ottawa, joined the Department of Pensions and National Health in 1938 as the first member of what later became the Information Services Division and had been associated with the department's health education and publicity program continuously since then, except for several years' service overseas during World War II.

F. B. Watt, Ottawa, was recently appointed to the staff of Information Services, Department of National Health and Welfare. Mr. Watt has had a distinguished career in journalism, having served for several years on the staff of the *Edmonton Journal*, and is the author of numerous articles and stories published in leading magazines both in Canada and abroad.

Hospital construction grants recently approved under the National Health program include: *Prince Edward Island*, Falconwood Hospital, Charlottetown, nurses' residence, \$16,500; *Ontario*, Cobourg General Hospital, Cobourg, \$101,193; *Saskatchewan*, St. Walburg Union Hospital, \$13,136; *St. Joseph's Hospital Ile à la Crosse*, \$46,716; *British Columbia*, St. Mary's Hospital New Westminster, \$195,693.

Nova Scotia

The annual Staff Meeting was held in Halifax, April 29, 30 and May 1, 1957, at which time the Divisional Medical Health Officers, Heads of Divisions and Supervisors of Nurses were privileged to hear discussions on many aspects of Public Health work.

Miss Barbara Miller, R.N., was transferred from the staff of the Nova Scotia Sanatorium, Kentville to the Northumberland Division as a Public Health Nurse receiving her inservice training before going to university this fall to take Public Health Nursing.

Miss Claire Garrett, Public Health Nurse, Baddeck, was transferred to New Glasgow and Miss Patricia MacLeod of Dartmouth was transferred to Baddeck.

New Brunswick

Dr. J. R. Allanach, District Medical Health Officer, carried out an early poliomyelitis vaccination program this year in the months of February, March and April in the counties of York, Carleton and Victoria. Since the beginning of poliomyelitis vaccination in 1955, Dr. Allanach and the public health nurses have completed the vaccination (three injections) of 7,280 children and have given two injections to another 3,820 in these counties. This is a high proportion of the available children, and coverage has included rural as well as urban areas.

Following the extensive survey of eating habits conducted in the Tracadie, Green River and Ste Anne areas last fall, seven-day (and night) Nutrition Clinics have been conducted in each of these districts. The clinics were supervised by Dr. L. B. Pett, Chief of the Nutrition Division, Department of National Health and Welfare, Ottawa, and his two biochemists, Mr. R. Yarnell and Mr. Paul Lupien, with the assistance of Miss Thelma Sewell and Miss Monique Saint-Hilaire and of the district public health nurses, Miss M. Fearon, Miss G. Chaisson, Miss C. Pichette and Miss N. Cormier. The medical health officers, Dr. V. Gendron and Dr. Laporte and the Assistant Director of Maternal and Child Health, Dr. L. Richard, offered generous co-operation and the response of the people attending the clinics was excellent. Results of the survey will be made known after the information learned from the diet histories and the clinical examination has been compiled.

Upon completion of their orientation period in Fredericton under the direction of Miss Phyllis Batt, P.H.N., three nurses will join the public health nursing staff. Miss Lorraine Burke will be located in Bathurst, Miss Ruth Vaughan in Sussex, and Miss Edmonde Porier will be in Newcastle.

Miss Lois Smith has now joined the permanent staff of the Provincial Hospital as Superintendent of Nurses.

Manitoba

The provincial health department's Bureau of Food Control and the Dairy Science Department of the University of Manitoba jointly conducted a market milk course this May for the dairy industry, for provincial sanitary inspectors and for pasteurization plant operators from institutions. The week-long course of instruction, said Grant

McLeod, Director of Food Control, covered the handling and processing of milk and fluid milk products.

The appointment has been announced of Dr. J. N. R. Scatliff as Medical Director of Misericordia General Hospital, Winnipeg. Dr. Scatliff was formerly Director of the St. James-St. Vital-Fort Garry-Charleswood Health Unit. His new duties commenced on June 1.

Saskatchewan

The first western conference of provincial health education directors was held in Regina on April 16 and 17, attended by the following: Ralph Wendeborn, director of health and welfare education for Manitoba; C. C. Evoy, director of health education for Alberta; Christian Smith, director of health education for Saskatchewan; Mrs. Helen Marsh, information officer from the Information Services Division, Department of National Health and Welfare. Ray Goodacre, director of health education for British Columbia was unable to attend owing to previous commitments. Discussions covered a wide range of subjects, with supplementary materials for schools given considerable attention. Staff training and staff relationships also were prominent topics and those present spoke of ways to make teamwork in public health a reality. The meeting expressed deep regret at the death of Fred Rowse, assistant director of the Information Services Division.

The Psychiatric Services Branch of the Department of Public Health was among sponsors of an Institute on Child Psychotherapy which was held at the University of Saskatchewan May 27 to June 1, with Bruno Bettelheim, Ph.D., of the faculty of the University of Chicago as the instructor. A series of lectures and seminar groups were planned to cover the theoretical and practical aspects of the therapy and education of children suffering from emotional difficulties.

A conference of the staffs of the physical restoration centers of the Saskatchewan Department of Public Health was held at the Saskatoon Restoration Center on April 24 and 25. General chairman of the sessions was Dr. Frank Cullis, specialist in physical medicine at the Regina center.

Two panel discussions were prominent on the agenda. The first was entitled "Rehabilitation—A Community Project" and featured as chairman Mr. G. A. Roeher, executive director, Saskatchewan Council for Crippled Children and Adults. Dr. A. E. Buckwold, paediatric consultant, moderated the discussion. Dr. Buckwold also presented a paper on the "Rehabilita-

tion of Aspartic Children". The second panel discussion explored "Recent Trends in Speech and Hearing for the Brain-Injured" and was chaired by Dr. John Gerrard, Professor of Paediatrics, University Hospital. Mr. A. F. Leard, Superintendent, School for the Deaf, was moderator. Contributions by individuals, group and general discussion, reports, workshops, demonstrations and filmstrips made up a full and varied program.

Saskatchewan's eighth large health region (public health unit) came into existence May 1 by order of the Honorable J. Walter Erb, Minister of Public Health. The new health region embraces an area in west central Saskatchewan and includes nine towns, 43 villages, and 35 rural municipalities, with a total population exceeding 50,000. The minister's order followed a 60-day waiting period following notice of intent as required under the Saskatchewan Health Services Act. The Minister acted in response to petitions received from urban and rural governments and as the opposition was negligible, no vote was taken. Dr. George Kinneard, director of the department's Regional Health Services Branch, invited all urban and rural municipalities to send delegates to a meeting on May 24 for organization of the regional and district health councils, election of a regional board of health, and choice of the regional headquarters. Under the act the department pays two-thirds of the operating costs of a health region, and additionally any amount in excess of 50 cents per capita assessed against any municipality as its share of the remaining one-third. This brings the provincial subsidy for regional public health service to about 70 per cent. In a further order the Minister of Public Health has divided the new health region into three health districts with district centers to be established in Rosetown, Biggar, and Kindersley.

Alberta

A new health unit, to be known as the Edson Health Unit, has been established in the Edson district and will include the busy oil development district around Drayton Valley and a rapidly expanding industrial community at Hinton. Headquarters of the health unit will be at Edson and sub-offices will be located at Drayton Valley and Hinton. Staff appointments have not yet been completed but it is expected that services will commence July 1.

British Columbia

A number of nurses from the Provincial Health Department were present at the Eleventh Quadrennial Congress of the International Council of Nurses, in Rome, which was held from May 27 to June 1. Included among them were Miss Monica Frith, Director of Public Health Nursing, Miss Esther Paulson, Director of Nursing for the Division of T.B. Control, Miss Eleanor Bradshaw, Public Health Nurse for Powell River, Miss Nancy Lee, Supervisor of Public Health Nursing—East Kootenay Health Unit, Miss Kay McKinnon, Public Health Nurse for Kimberley, Miss Elizabeth Layton, Public Health Nurse for Ganges, and Miss Elvera Nordland of the B.C. Hospital Insurance Service.

The Canadian Nurses' Association has announced the appointment of Miss Helen K. Mussallem to the staff of National Office as Director of the Pilot Project for Evaluation of Schools of Nursing in Canada.

The twenty-third annual Dominion convention of the Canadian Institute of Sanitary Inspectors will be held in Vancouver, British Columbia, from July 15-18, 1957. On July 17, the meeting will adjourn and all members will entrain for Seattle, Washington, to be present at the First Congress of the International Federation of Sanitarians Organizations. This joint meeting is the culmination of years of endeavour and will affiliate the Canadian Institute of Sanitary Inspectors with the National Association of Registered Sanitarians of the United States.

Prince Edward Island

The Department of Health of Prince Edward Island records with regret the passing of Dr. P. A. Creelman. Following service in World War I, Dr. Creelman graduated from Dalhousie University and after practising his profession in Nova Scotia and Newfoundland came to Prince Edward Island where he was appointed the first Provincial Health Officer and Travelling Tuberculosis Diagnostician. Dr. Creelman was awarded the M.B.E. in 1945 for meritorious work in the field of tuberculosis control. In 1949, he was appointed Director of Tuberculosis Control and Superintendent of the Provincial Sanatorium. During his service the death rate from tuberculosis on Prince Edward Island fell from 118 to 36 per 100,000. In 1956, Dr. Creelman was elected First Vice-President of the New Brunswick-Prince Edward Island Branch of the Canadian Public Health Association.

